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ABSTRACT

This curriculum consists of a common core of computer-related knowledge and skills that emphasize developing knowledgeable users of microcomputers rather than computer programmers, technicians, or engineers. Teacher and student editions are provided. Eleven competency-based modules are included. Modules 1, 3, 4, and 6 emphasize hands-on skills necessary to begin operating any microcomputer effectively. These user skills constitute the heart of the curriculum and are intended to be learned at the keyboard. They are handling hardware, the manual, the operating system, and peripherals. Modules 2, 5, 7, and 8 are awareness sections, which cover how the computer works, history, impact, and careers. Modules 9-11 introduce the most common applications of microcomputers in business: wordprocessing, database, and spreadsheet. The first page of each module identifies the competency to be learned, the performance objectives, and activities. The body of each module consists of reading assignments and learning activities. The modules are intended to serve as a largely self-directed, self-paced guide to learning. Specific teaching suggestions are found in handwritten notes in the margins of the teacher's edition. Appendixes include a glossary, worksheets, and pretest/posttest with key. The student edition contains only the modules. (YLB)

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MICROMANIAC©

INTRODUCES YOU TO THE COMPUTER

TEACHER AND STUDENT EDITIONS

by

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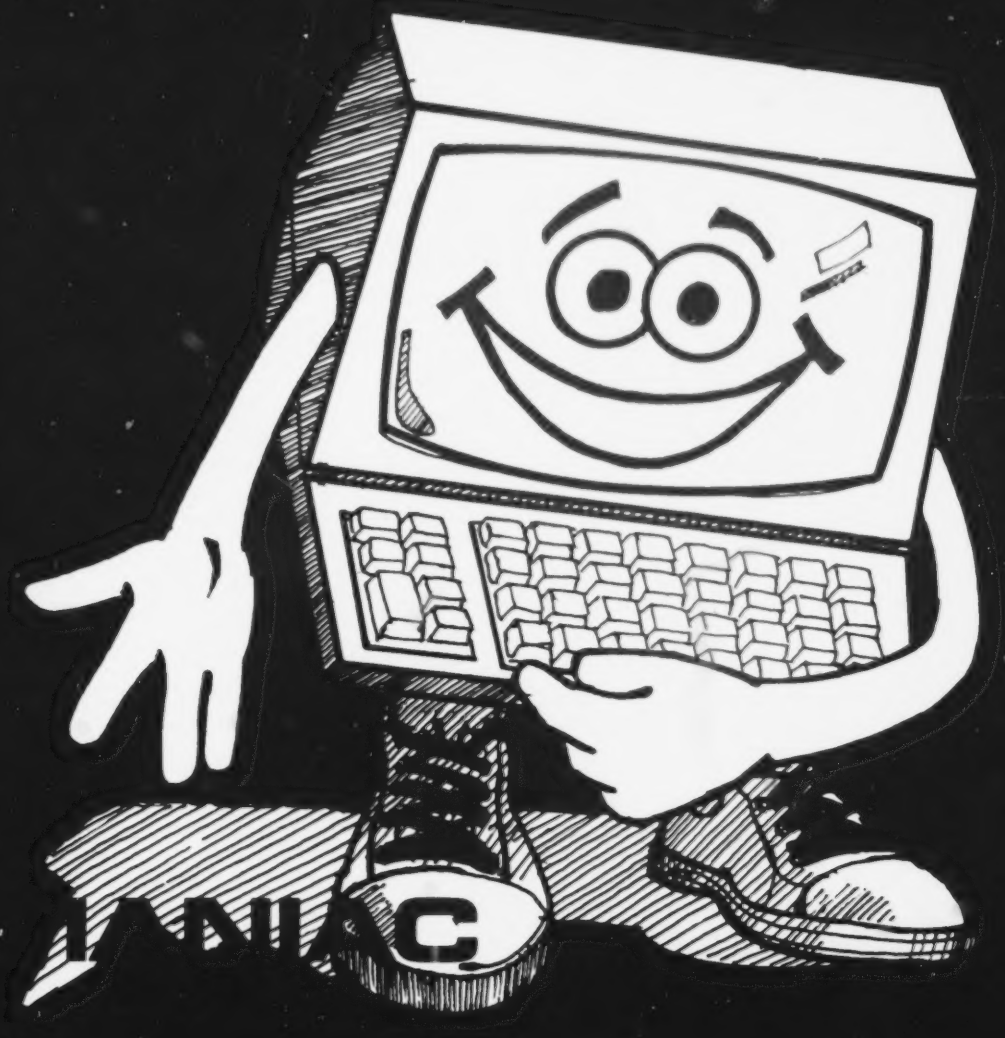
TEACHER EDITION



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MICROMANIAC® INTRODUCES YOU TO THE COMPUTER

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INSTRUCTOR MODULE

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER has been developed by the Arizona Center for Vocational Education in cooperation with the Arizona Department of Education. It is designed for use by vocational instructors and students as they learn to use the computer.

OVERVIEW

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER consists of a "common core" of computer related knowledge and skills that would be used in a variety of occupations. The emphasis of this course is on developing knowledgeable "users" of computers rather than computer programmers, technicians, or engineers. As noted elsewhere in this course, it is projected that by the year 1990 eighty percent of all occupations will be impacted or affected by the use of computers. The need for literate and competent users becomes more and more obvious.

Since this course is aimed towards a broad list of competencies, it does not make reference to any specific occupation. This departs somewhat from the normal approach to competency-based vocational education, which generally begins by identifying a particular occupation and the skills to be learned which are specific to it. MICROMANIAC© INTRODUCES YOU TO THE COMPUTER is intended to serve as an aid and guide to the learning of any microcomputer and its most common applications in business and industry.

A note on the difficulties of the generic approach: there are over 70 types of microcomputers commonly used in business today, and literally thousands of different software applications. It is beyond the scope of this curriculum (and indeed probably any one curriculum) to address each of these in particular. This curriculum has identified the skills generic to a variety of the most commonly used microcomputers. An attempt has been made to note exceptions to the general rules, but no claim can be made for completeness.

This course has also focused on the use of microcomputers rather than mainframes. The awareness modules can apply equally to micros and mains but the user skills and applications are specific to the microcomputer. The very size and power of a mainframe computer often makes the operating requirements quite different.

ORGANIZATION

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER begins with a pretest that should be administered to all students. The questions are categorized on the key to relate directly to the various modules. This allows the pretest to be used in one of two ways. If the curriculum is taught as a self-paced unit the pretest will indicate modules that a student is proficient in and could be allowed to omit. If the curriculum is taught

to an entire class, the pretest will alert the teacher to weak and strong areas, allowing you to tailor the course to meet the specific needs of your students.

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER is competency-based. It is intended that the student demonstrate mastery of the required level of proficiency before moving on. The hands-on portions require 100% competency. Either the student can or cannot perform the required operation. If the student has not acquired the necessary skill, then further study or practice is required.

A total of eleven modules make up MICROMANIAC© INTRODUCES YOU TO THE COMPUTER. Module titles are listed below to give you an idea of the content.

Module One	HANDLING HARDWARE
Module Two	HOW THE COMPUTER WORKS
Module Three	THE MANUAL
Module Four	THE OPERATING SYSTEM
Module Five	HISTORY
Module Six	PERIPHERALS
Module Seven	IMPACT
Module Eight	CAREERS
Module Nine	WORDPROCESSING
Module Ten	DATABASE
Module Eleven	SPREADSHEET

Modules one, three, four, and six emphasize the hands-on skills necessary to begin effectively operating any microcomputer. These user skills constitute the heart of the curriculum and are intended to be learned at the keyboard. Mastery of these sections does not mean that the learner knows everything about how to use a computer. It does mean that he/she has the basic foundation of skills upon which to begin functioning with a microcomputer, and hopefully the tools with which to learn more sophisticated techniques.

Modules two, five, seven, and eight could be referred to as awareness sections, as they emphasize knowledge about computers. The student is introduced to the working of the computer on a non-technical basis, a short history of computers and their impact on society and is asked to explore career opportunities in computing.

Modules nine through eleven introduce the three most common applications of microcomputers in business: wordprocessing, databases, and electronic spreadsheets. Again, the approach has been not to focus on a particular piece of software but to identify the knowledge and skills common to these application packages.

The teacher is encouraged to arrange the modules to best accommodate the existing curriculum and scheduling demands. During field testing teachers found the awareness sections--modules two, four, seven and eight--helpful to use during times when students didn't have access to the computers.

Each module incorporates some type of evaluation device, whether a competency profile checksheet or student worksheet, to monitor progress throughout the course. The curriculum also includes a posttest to demonstrate mastery of the entire curriculum.

Each module is arranged in the same manner. The first page identifies the module number and the general area which it covers. Also on the first page is the competency to be learned and the performance objectives. Next are the activities to be completed.

The body of each module consists of the learning activities. These will range in number from one to several. Some require simple actions such as reading and comprehending a passage from the text on a particular subject. Others involve experiences aimed at mastering complex computer skills. Many of the modules have worksheets that the student can retain as a reference for future use. It is intended that these modules, along with the requisite resources, will serve as a largely self-directed guide to learning, thus freeing the instructor to become a facilitator and manager of learning.

TIPS FOR TEACHING

Specific teaching suggestions will be found in hand written notes in the margins of the teacher's edition of the student section. These suggestions are a result of the field testing and were offered by teachers who have actually used the materials.

As noted before, MICROMANIAC© INTRODUCES YOU TO THE COMPUTER is competency-based. While there are several modules that are solely concerned with knowledge tasks in them, the thrust of the course is towards hands-on experience. You will undoubtedly want to correlate reading assignments from your texts with many of the modules. Learning experiences have also been included to get students out into the community and to help them become aware of current computer applications. As you begin using the materials you will become increasingly aware of computer information all around you. You are encouraged to incorporate new materials into the modules.

The curriculum is designed to be self-paced but can easily be adapted to a group learning situation. Individual assignments could easily be changed to field trips or guest speakers. You might want to encourage a group discussion of the terms included in each unit to ensure a better understanding. A discussion will also allow students with some prior knowledge to apply it for the benefit of the group.

It is recommended that you become familiar with the modules before starting to teach them. You will want to have mastered all activities on the particular computer in your classroom and fully understand the software packages. This will require that you spend time on the computer and also be able to solve problems and troubleshoot. Students have an uncanny ability to develop glitches never before seen.

You will undoubtedly find alternate routes to teach MICROMANIAC© INTRODUCES YOU TO THE COMPUTER. If computers are not available, it is possible (though not recommended) to teach just the computer awareness section. Conversely if there are constraints on time and/or software availability, it is possible to teach just the awareness and user skill sections. If students have acquired working knowledge of computers elsewhere, the general applications section can serve as the basis for an in-depth study of the specific uses of the microcomputer.

One final note on teaching: this curriculum is the bare-bones of a computer course. It is not a self-contained learning package, but rather gives coherence and direction to the teaching of basic computer materials. At a minimum, MICROMANIAC© INTRODUCES YOU TO THE COMPUTER requires a text for the awareness section, and the proper computer and software manuals for the for the user skills and general application sections. Beyond that, there is a wide range of film strips, wall charts, models, and demonstration tools available commercially which will contribute to the mastery of the subject.

The History module, for example, would be greatly facilitated by a collection of models of early computing devices and wall charts showing the evolution of devices to aid in thought. The Career module would be greatly enhanced by a presentation from a local businessperson on the use of computers in their field. Field trips to see how computers are involved in various aspects of society would do a great deal to strengthen the student's understanding of the impact of computers on the modern world. This list of outside resources is certainly not exhaustive, but is intended to be suggestive of some of the many possibilities.

LENGTH OF COURSE

The panel of computer teachers and vocational instructors which assisted in the development of this curriculum felt that it would take between nine weeks to a semester to present on a high school level. The course length would depend on the number of enrichment materials brought into the course, and the depth to which the application module was covered.

During the field test, the teachers used the curriculum to supplement their existing course of study. In each of the three field test situations, a different text book and course outline was used. Each teacher found the material easy to integrate into the semester's materials.

With some enrichment materials and an in-depth look at application software, this curriculum would make an excellent introductory course at the community college level. The knowledge and skills necessary to effectively use computers as tools are the same at all levels. The intensity and method of presentation will vary to meet the learners needs, but the information is the same.

FIELD TEST

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER has been field tested with populations ranging from high school business classes to disadvantaged high school students participating in a college bridge program, to educators working for graduate credit, to lay people in business who wished further knowledge about computers.

The field test in high school business classrooms and subsequent evaluations resulted in the latest refinements to the curriculum. A description of the conditions of the field tests and the recommendations follow.

The curriculum was field tested at Holbrook High School by LaVerne Brown and Elvera Wiegand in two sections of Data Processing. The majority of the students were in the 11th grade, with about an equal number of 10th and 12th grade students. The class had access to a lab consisting of 18 Apple Computers (10 Apples and 8 Apple IIe's) in a network configuration. Assignments were given from the textbook, textbook related "handouts", and the MICROMANIAC© curriculum. Most of the students had no previous experience with computers or data processing. MICROMANIAC© INTRODUCES YOU TO THE COMPUTER was used to supplement the established course content and textbook. Sections of the curriculum were used, as appropriate, with some sections being omitted. The fact that not all modules were covered helps to explain why the Holbrook students had a lower average gain in scores from the pre- to posttest than the other field test students. The Holbrook classes showed an average gain of 19% on the posttest as opposed to the pretest. Both teachers were frustrated by students with no previous typing or keyboarding training and strongly recommend that this be a prerequisite for data processing students. The Holbrook teachers using the curriculum found it to be flexible and easy to adapt as a supplement to their course content and textbook. They found the definitions in each module helpful. The check sheets requiring the students to demonstrate ability to handle the hardware were found to be time consuming, but advantageous.

Joan Tolle tested the curriculum in one section of a course called Introduction to Computers and Basic Programming at Sahuaro High School in Tucson. The class of thirty students included a mix of 10th, 11th and 12th graders. As with Holbrook High School, many of the students had no previous keyboarding experience. Next year the district is implementing a policy which will require typing as a prerequisite for all computer classes. The class met in the CAI computer lab which was equipped with 15 Apple IIe microcomputers. The curriculum was supplemented by the

text, SPOTLIGHT ON COMPUTER LITERACY by Random House. By using the first four modules of the MICROMANIAC© curriculum before teaching any programming, the teacher felt that the students completed the two programming chapters with greater ease. The module on Wordprocessing was introduced earlier in the unit to enable the students to use wordprocessing for their personal use. Though the curriculum emphasizes computer literacy, the teacher found it dovetailed nicely with the programming requirements of the course outline. The teacher felt that the needs of the students were better met by placing more emphasis on computer literacy with only a small amount of time devoted to BASIC programming. As a result of the teacher's recommendation, next year two sections of Computer Literacy will be offered following this format and hopefully using MICROMANIAC© INTRODUCES YOU TO THE COMPUTER. Students in the field test at Sahuaro High School made an average gain of 30% from the pre- to posttest.

Tuba City High School was the third test site for the MICROMANIAC© INTRODUCES YOU TO THE COMPUTER curriculum. Evelyn Ramirez used the curriculum in one section of a course titled Computer Literacy. This course included an introduction to BASIC programming and the MICROMANIAC© curriculum was used to supplement the classroom text and existing materials. The lab this class used was equipped with four different brands of computers. Students rotated from one computer to another so each student was exposed to each brand of computer. The teacher felt that the MICROMANIAC© curriculum helped increase the students' understanding of the concepts and terms. The Tuba City students showed an average 30% increase in scores from the pre- to posttest.

LAYOUT AND EQUIPMENT

This curriculum is designed for hands-on learning. As such it will require the presence of computers, user-friendly software, and peripherals. It appears that 30 students are the maximum one instructor can effectively teach. This would necessitate a minimum of 16 computers, one for every two students and one on which the instructor can demonstrate and test. A large screen monitor is highly recommended.

While one printer for every two computers is the recommended minimum, it would be possible to get by with only one printer per four computers. There should be sufficient software for all students to be working at once and a minimum of one copy of each manual (computer, software, printer, etc.) for every student team.

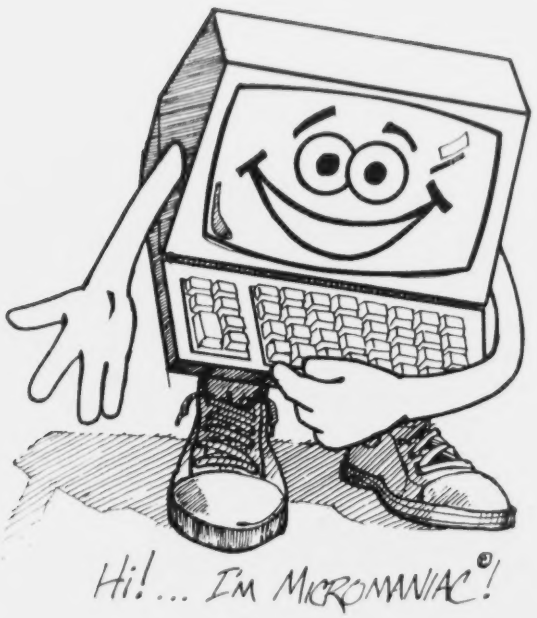
Access to a modem is recommended for module seven as it is felt modems will be widely used in the near future. Perhaps a computer store or a student would loan a modem for classroom demonstration during this module if it isn't already a part of your equipment.

The ideal physical arrangement would be to have tables which would comfortably hold two computers and a printer, and seat four students. The large screen monitor should be placed at the front where it can be

observed by all. There should be space between the backs of chairs and the table behind so that the instructor can easily walk around the room to observe and aid student progress.

Manuals should be properly labeled and filed in cabinets along the back of the room. Software must be properly labeled, protected with backup copies for student use, and originals stored in locking cabinets. A check-out procedure is highly recommended. It would also be quite valuable to have a variety of supporting software available, such as typing programs, spelling checkers, English tutorials, and examples of other appropriate software.

In addition to these required items, support materials such as wall charts, pictures, and progress graphs would be useful. A magazine rack featuring a selection of the latest in computer and software magazines would aid in helping students to understand that the hardware and software to which they are being exposed is only a fraction of what exists in business and industry.



I'LL BE AROUND THROUGHOUT THIS COURSE OF STUDY. YOU'LL SEE ME USED TO INTRODUCE OR EXPLAIN A VARIETY OF IDEAS. I THINK YOU'LL FIND THIS BOOK HELPFUL IN UNDERSTANDING MICROCOMPUTERS AND HOW THEY ARE USED TODAY. DON'T WORRY THOUGH, THIS COURSE WON'T TURN YOU INTO A MICROMANIAC©!

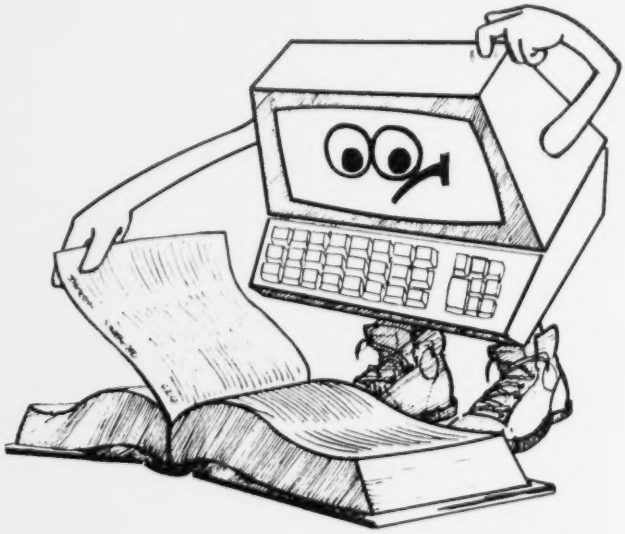
INTRODUCTION

"What types of computer usages are you familiar with?", is a question that more and more job applicants are being asked. It is projected that by the year 1990 eighty percent of all occupations will be impacted or affected by the use of computers. If you have some knowledge of computers and their applications when applying for a job it will give you an edge over other applicants. In all probability you will be expected to use a computer in one way or another on almost any job.

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER has been developed by the Arizona Center for Vocational Education in cooperation with the Arizona Department of Education. It is designed to introduce you to a "common core" of computer-related knowledge that might be used in a variety of occupations. The course focuses on the use of microcomputers and how they might be used on the job.

Computers have created their own jargon.

Remember when ... a bit was something that fit into a horse's mouth?
... a chip was a crisply fried potato?
... hardware meant nails, bolts and screws?
... boot was a noun worn on the foot?
... software was worn to keep warm in the winter?
... a catalog was for mail order merchandise?
... initializing meant signing the first letters of your name?



B.C., before the computer revolution, only scientists and technologists were interested in the vocabulary of computers. Today however, since the explosive growth of the computer's use in business and industry, it has become necessary for many people to learn this language. Just as when you first learned to talk it was easiest to learn a word when you wanted to use, it you will find it easiest to pick up computer terminology as you have a use for a particular term. With this thought in mind MICROMANIAC© INTRODUCES YOU TO THE COMPUTER has included "terms" with each module or chapter. These terms should be defined in your student glossary. Definitions may be found in the glossary of a computer manual, the reference books in the classroom or from your own knowledge.

Each module includes learning activities that your classroom teacher may assign or you may be expected to work independently. The activities have been varied and are designed to get you involved in the "world of computers". If you have a special interest in a particular area or think of another activity related to the module you are studying, you might suggest an assignment to your teacher. As you complete this course you will become increasingly aware of computer usage and the vast amount of computer information that is available. Investigate areas that are of interest to you. You might be surprised at the career your interest will lead to.

MODULE ONE

HANDLING HARDWARE

COMPETENCY:

Demonstrate the use and care of computer hardware.

OBJECTIVE:

Given a checklist demonstrate the use and care of computer hardware with 100% accuracy.

ACTIVITIES:

Read assignments.
Define terms.
Identify function keys.
Perform operating procedures.

MODULE ONE

HANDLING HARDWARE

In this module you will be introduced to the following terms:

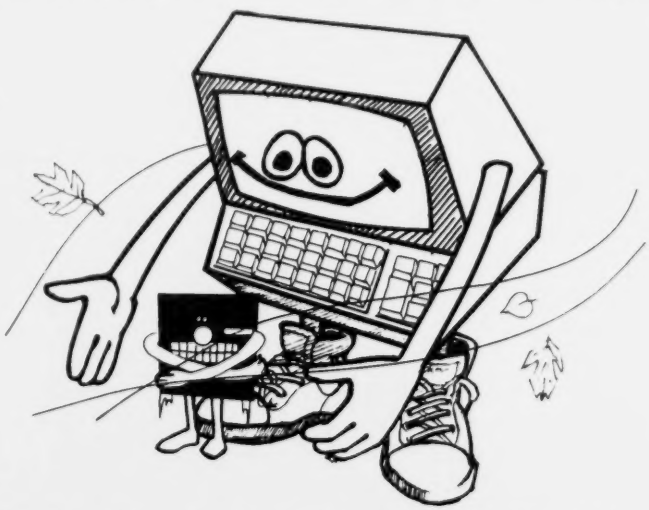
Boot	Disk	RAM
CRT	Hardware	Software
Cursor		

CARE OF HARDWARE

TREAT THE COMPUTER AS YOU WOULD A GOOD STEREO

A computer is more sensitive and often more expensive than a good stereo. It is wise to treat them similarly. Never drop, bump, or bang a computer. Protect it from power surges. Do not eat, drink or smoke around one. Anything spilled or dropped into the keyboard or drives can cause extensive damage. Computers are fragile devices. They do not function properly if too hot, cold, or dirty. If a computer is taken care of, it will work well for a long time.

CARE OF SOFTWARE



Disks should never be exposed to extreme heat or cold, direct sunlight, or any kind of magnetic or electronic radiation. To do so may result in erasing the stored information. Also, never scratch, bend, or in anyway damage one. Always handle them gently. Never force them into the drive. Never touch the shiny parts with anything. Disks are far more sensitive than records or cassette tapes. TAKE GOOD CARE OF THEM, or a lot of work may be lost.

MAKE MULTIPLE COPIES OF DISKS

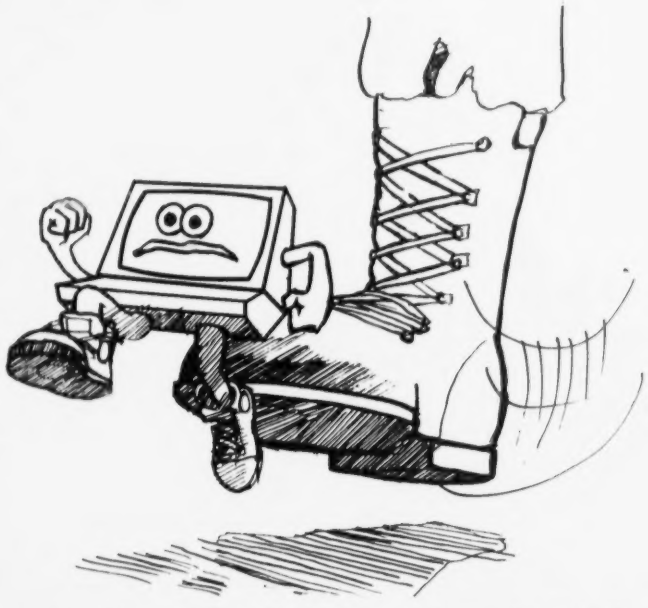
Another important principle in using both software and file disks is ALWAYS BACK UP WORK!!! It is a simple and painless process to make multiple copies of disks. Failure to do so could result in the loss of many hours of work.

IDENTIFYING HARDWARE PARTS

It is important to know the proper names of the various parts of the computer in order to talk about them effectively with other people. To refer to the CRT as "that thing that looks like a TV" may explain what you are talking about but it will also mark you as a person who knows very little about computers. If you are having problems identifying the parts of the computer, ask your instructor or a fellow student for help. The owner's manual will also be helpful in learning the parts of the computer.

CALL PARTS OF THE COMPUTER BY THE PROPER NAMES

BOOTING



Booting a computer simply means starting it. In the early days of computers an immense amount of work was required to get a computer turned on and started running. This process was likened to lifting one's self up by the bootstraps; hence the term "booting". There are two types of boots. The cold boot starts up a machine that has been turned off. The warm boot directs an already functioning machine to start using a new program.

A cold boot generally means to place a disk in the drive and turn the computer on. However, some machines will require turning on first, and then inserting the disk (TRS-80's and CP/M machines commonly do this). The most common procedure is to check that the machine is properly plugged in, place the disk in the dominant drive (usually labeled A, 1, or 0), and turn on the power switch. The drives will whirr, their red lights will come on, and then a prompt or "hello" will appear on the screen. Read the operating manual and find out exactly what is required to execute a cold boot on your computer.

COLD BOOT

WARM BOOT

A warm boot is performed when the machine is already being used and a change to another program is desired. If programs were changed without doing a warm boot, the computer would never know a new disk was in the drive. Place the new disk in the drive and reset the machine. There are a variety of ways to do this. Often there is a reset button. Many times Control C (^C) will cause the machine to warm boot. (The Apple IIe requires pressing the reset button while holding down the control key and the open apple key.)

KEYBOARD

SIMILAR TO A TYPEWRITER

Looking at the computer keyboard, you will notice that it resembles a typewriter. Many of the keys on the computer function as on a typewriter. If you press the letter "j", a j appears on the screen. This holds true for the number keys also. The shift key also functions like a typewriter's shift key. Holding the shift key down turns the "j" into a "J" on the screen. The space bar works similarly to the one on a typewriter. Push it down and it creates a space.

Many teachers find it helpful to go over each key with students when they are at the keyboard.

The caps lock key differs a little from the one on the typewriter. Once you push it down it stays down until you push it again to turn it off. Putting the caps lock on does not change what the number keys print. If you put the caps lock on and type the "7" key a "7" is printed on the screen. To print the uppercase symbol on the "7" key, hold the shift key down. Many computers have a small light on the caps lock key to let you know if it is on or off.

RAM

It is important to understand that all of the alphanumeric keys (numbers and letters) send information only to the RAM (random access memory) banks in the computer as they are typed. If the computer were to be turned off everything on the screen would be lost unless the information had been saved to a tape or diskette. This "save" operation is discussed later.

How about creating a help menu or quick reference guide with the function of various keys listed, and tape it to each station?

In order to actually communicate with the computer, to make it do things, certain keys have been added which are called function keys. The two most important of these keys are the RETURN (or enter) and the CONTROL (or ctrl). The return key is somewhat like the carriage return on the typewriter. It returns the cursor to the beginning of a new line. Depending on the software being used it may send the line you have just typed on the screen to the RAM to be temporarily stored. In computer manuals the symbol for the return key is generally ⟨ret⟩, ⟨enter⟩, or ⟨CR⟩.

The control key is used when you want the computer to do something. Pushing it by itself does nothing. Try it. Push it down and let it up. See, nothing happened. The control key only works when it is pushed simultaneously with another key (usually one of the letter keys). This combination is called a "control sequence".

CONTROL SEQUENCES VARY

Control sequences (or command sequences) vary from computer to computer. Even within the same computer, control sequences vary from one type of software to another. Command sequences have to be relearned as you move from computer to computer and from one type of software to another. Fortunately, after one set of commands has been learned, it is generally easy to learn a new one.

Control characters can move the cursor, scroll text on the screen, start an operation, stop an operation, cause the printer to print, move from one menu to another, and a whole host of more complex functions. In computer manuals the notation most often used to indicate a control character is the "^" symbol or "CTR". For example, many computers use the sequence Control C to cause a "warm boot." This would be written as "^C" or "CTR-C".

ESCAPE!

Another key which works much like the control key is the escape key (or ESC). This key will also modify the keyboard's actions. When pressed, followed by another key, the escape will cause a variety of responses. While escape is not used as often as control, it is important to know. Again, like the control key, the specific result of pushing escape varies with the type of computer and program. One common use of the escape key on many computers is to interrupt a program that is running.

COMMON KEYS

The final group of keys which are common to most computers are: the back-space, which, as its name suggests, causes the cursor to move back one space; the delete key (or DEL) which erases one space to the left; and the arrow or cursor keys which move the cursor horizontally and vertically on the screen.

"EXTRAS"

In addition some computers have a group of keys called dedicated function keys. These are usually grouped together and labeled F-1 through F-10, or they may be named as to their particular purpose. Often a number pad is also found on a keyboard. This is a group of keys numbered 0 through 9 with an enter key to the right of the keyboard. The number pad is more efficient than the numbers found at the top of the keyboard for entering extensive numerical data.

THE PROMPT OR CURSOR

TIME TO TELL THE COMPUTER WHAT TO DO

When beginning to work with the computer you will notice that with each program or system there will be a prompt waiting for your response. Some of the common prompt symbols are the bracket (]), the question mark (?), and the chevron (>). The prompt requires a response before the computer can continue to operate. What the prompt actually means is that the computer is waiting for your instructions.

Similar to the prompt is a symbol called the cursor. Common cursor symbols are a flashing rectangle or line. Cursors only exist inside of functioning programs like a wordprocessor or a spreadsheet. The cursor shows the next place where type will appear on the screen. Like the prompt, the cursor is the computer's way of indicating that it is waiting for input.

Don't start typing until the prompt or cursor is visible. The computer often takes time to find the information it needs, particularly if it must be read from a disk. NEVER hit the return or press any key before the cursor or the prompt appears. Doing so could abort the program being executed.

Activity One - Work on the student glossary by defining the terms listed at the beginning of Module One.

Activity Two - Complete student worksheet #1 as directed by your teacher.

MODULE TWO

HOW THE COMPUTER WORKS

COMPETENCY:

Describe the major components of a computer and their functions.

OBJECTIVE:

Given an illustration of the major computer components and accompanying statements, describe their functions with 100% accuracy.

ACTIVITIES:

Read assignment
Define terms

MODULE TWO

HOW THE COMPUTER WORKS

This module lends itself well to a good lecture. Reading alone will be difficult for many students.

In this module you will be introduced to the following terms:

Applications Software	Machine Language
Binary System	Program
Bits	RAM
Byte	ROM
Chips	Software
CPU	Systems Software
Input	Terminal

INTRODUCTION

You may be wondering why it is necessary to know anything about the parts of a computer and how they work. Perhaps a comparison to a car will help explain. Suppose you had been given a car without any explanation of how it worked (and you had never driven nor been in one before). While it probably wouldn't be important for you to understand the firing order of the pistons or how the fuel-air mixture is set by the carburetor, you would undoubtedly like to know how to put the key in the ignition. It would also help to know that a car needs gas to run, which pedal is the brake, and how to steer.

The fellow in the cartoon obviously knows little about the parts of a computer and how it works. He has found what he thinks is a better use for the "machine".

This module gives information about computers so that you can make better use of them than the cartoon shows.

You will learn the three basic parts and processes of any computer system, how they relate to one another, and very simply how they work.

Activity One - Read additional assignments as given by your teacher.

Activity Two - Work on the student glossary by defining the terms listed at the beginning of Module Two.

Activity Three - Complete student worksheet #2 as directed by your teacher.

MODULE THREE

THE MANUAL

COMPETENCY:

Use a computer manual.

OBJECTIVE:

Given the computer and accompanying manual, complete the activity as directed by your teacher.

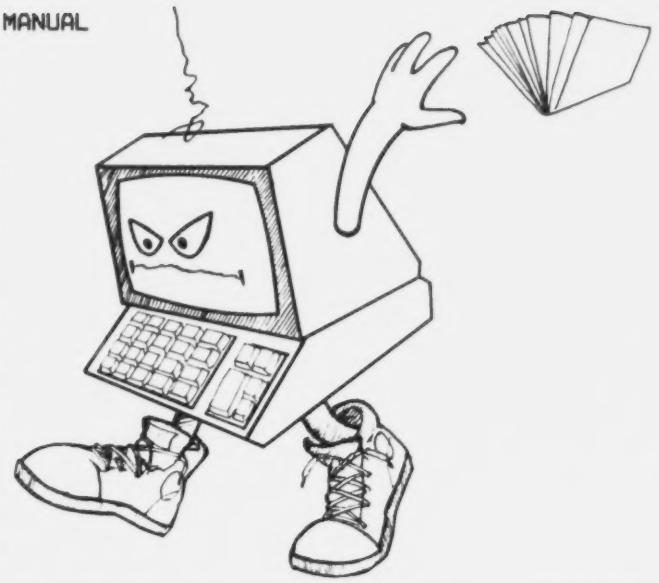
ACTIVITIES:

Read assignments
Complete activity as directed by your teacher.

MODULE THREE

THE MANUAL

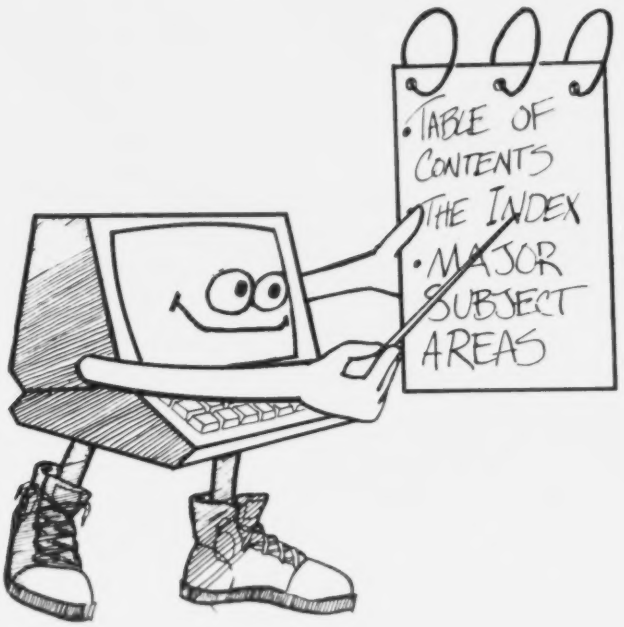
USE OF COMPUTER MANUAL



COMMIT YOURSELF TO LEARNING TO USE THE MANUAL

Learning to use a computer requires a commitment to learning its manual. It is impossible for anyone to teach you all the things there are to know about any computer. The possibilities for variation in needs and problems on a single computer and one piece of software are almost infinite. Multiply this by the number of computers and software available on the market today, and it becomes obvious that no one person can really know all that information. The mastery of computer skills is essentially self-taught. You have to be willing to learn on your own if you are to become truly proficient with the computer.

MASTERY OF COMPUTER SKILLS IS SELF TAUGHT



THREE SOURCES OF HELP

Three basic sources of information exist to aid in your learning and problem solving. The first and most important is the manual that came with

the computer or the software package. The second is the local expert, be it a friend with a similar device, a sales representative, or dealer, or maybe the resident whiz kid. The final source of appeal is the customer support department of the manufacturer or publisher. Do this as a last resort as it is usually more difficult to access.

A MANUAL IS LIKE A REFERENCE BOOK

Computer manuals are arranged much like any other reference book. The three most important parts are the table of contents, the index, and the major subject areas. Another feature unique to computer manuals is the I/O and error chart. Take some time to examine the manual. Find the index (or indexes--many have more than one). Find the I/O and error message charts. Look through the table of contents and find the major subject headings. Become familiar with the book as a whole. The two most vital parts of the manual as you try to learn and solve problems will be the index and the I/O message charts.

A word of caution on manuals. The quality of computer manuals varies greatly. Some manufacturers produce excellent documentation. Others are infamous for unreadable and poorly organized work. Two major complaints are voiced about poorly constructed manuals. First, they are written in a completely technical jargon. This is particularly true of standard manuals of some of the major operating systems. The second is poor indexing and organization. However, there is a positive note. Where adequate documentation is lacking, it can be supplemented by good books on the subject from local stores.

TAKE TIME TO LEARN THE SYMBOLS IN THE MANUAL

Every manual has its own set of symbols and standard notations. While some common symbols are widely used, most manuals have some differences. It is good to take the time to learn these symbols so that they will become second nature. Unfortunately, most manuals do not have a chart that defines all their symbols and notations. You will have to go through the book and pick them out.

LEARNING FROM THE MANUAL

GAIN SOPHISTICATED SKILLS

Once the basics of working with a computer have been mastered, there are a variety of useful and more sophisticated skills which can be learned. Learning from the manual is one of the easiest ways to gain these skills.

First determine the name of the procedure in question. This may be frustrating as different systems use different names for the same action. If it isn't found under the title expected, be creative and try a variety of names.

Look the procedure up in both the table of contents and the index. Make a note of the pages, and read them in the order they appear. Once you have a grasp of how it works, try running the procedure. If it doesn't work go back and read the manual again. Try again. Pay close attention to spelling, typing, and file names. Make sure the proper drive is designated. Probably 90% of all difficulties in learning a new procedure can be traced to some very simple omission or error.

THE COMPUTER DOES JUST WHAT YOU TELL IT TO

A computer is an absolutely literal device. It will do precisely as instructed. Almost all errors in the execution of a procedure are human ones. Those few problems that are a result of bad hardware or disks are generally easy to spot. Don't be discouraged if you can't solve a problem on the first try. Let it rest for awhile and think about it. Try again. If you are still stuck, then look for the local expert. Often it is helpful to have someone else's viewpoint.

DIFFICULT TO DAMAGE THE COMPUTER - EXPERIMENT

Try experimenting with the computer. Short of physically assaulting a computer it is quite difficult to damage. Without a spirit of adventure, it is very difficult to learn. Undoubtedly, you will make a few mistakes. Learn from these. Almost any mistake can be corrected though some will take more time than others.

Don't be overwhelmed by what seems to be an incredible amount of information to be learned. Start with the basic items. Learn only what is needed for the moment, adding information as the need arises. There is no way to learn everything at once, so don't try.

Activity One: Complete Student Worksheet #3 as directed by your teacher.

Teacher: Involve students in a "hands on" activity with the manuals for your computers. As you guide their learning, expose the students to instructions directly from the manual for particular activities. These activities might include: initializing a disk, renaming files, copying disks, or copying a file.

MODULE FOUR

THE OPERATING SYSTEM

COMPETENCY:

Demonstrate skill in using a computer's operating system.

OBJECTIVE:

Given a worksheet and checklist demonstrate use of the computer's operating system with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Student Worksheet #4

This module contains a lot of information. It might be helpful to read it aloud as a class, having students underline at your direction.

MODULE FOUR

THE OPERATING SYSTEM

In this module you will be introduced to the following terms:

Catalog	Firmware	Operating System
Delete	Initialize	Programming Language
Disk Drive	I/O	Save

DEFINING THE OPERATING SYSTEM

A computer functions by integrating three different systems. The first is the computer itself which is called the hardware. The second is the operating system which is usually programmed into the computer by the manufacturer. This is often called firmware. The third is the program that is used for a specific application. This is generally called software. Hardware was studied in the last module, and software will be examined in the next one. This module will help you gain an understanding of the operating system that your computer uses.

PROGRAMMED BY THE MANUFACTURER

THE OPERATING SYSTEM IS THE COMPUTER'S TRAFFIC DIRECTOR

All computers have an operating system, which is a set of instructions that defines procedures, sets priorities, and in general acts like the traffic director of the computer. It is interesting to note that although we use the name computer to describe these machines, they actually spend very little time computing. Computers spend almost all their time in operation "organizing." Thus a good definition for an operating system is: a set of programs that manages and directs the computer's basic functions.

All operating systems have certain things in common. They manage I/O (input/output) devices, organize and keep track of files. and have a working storage (RAM, memory that lasts only as long as the computer is turned on). An operating system is generally placed in the computer by the manufacturer in the ROM (read only memory). In other words, the computer is permanently programmed to respond in a particular way to a given set of instructions.

An operating system also makes it possible for a person to work in a high-level programming language (such as FORTRAN, BASIC, COBOL, PASCAL). It is by using these high-level languages that programmers develop applications programs. These programs, which are generally called software, are the real reason that computers exist. Based on the characteristics of the particular operating system, software is designed to solve specific problems. These software

programs may be accounting, wordprocessing, handling a vast amount of information (databases), or just how to play a good video game. Operating systems exist so that software can be used to solve problems.

VARIETY OF OPERATING SYSTEMS

There are numerous operating systems used in computers It sometimes seems that each manufacturer has developed a different system, and unfortunately these won't run software from another system nor are the commands and functions the same. Keep in mind that what works on one computer will not necessarily work on another. Don't let this discourage you. If you have learned one system, it is almost always easier to learn a second one. Also, different brands of computers may have the same operating system.

The most common operating system is called CP/M (command program/microcomputer). The second most common system is MS-DOS (or PC-DOS). MS-DOS (MicroSoft DOS) is actually a "clone" of CP/M and its commands are quite similar. These two systems account for about 80% of all business software.

Two other quite common operating systems are AppleDOS and TRS-DOS. DOS stands for Disk Operating System and is an abbreviation frequently used in computer messages when referring to a particular type of system or error.

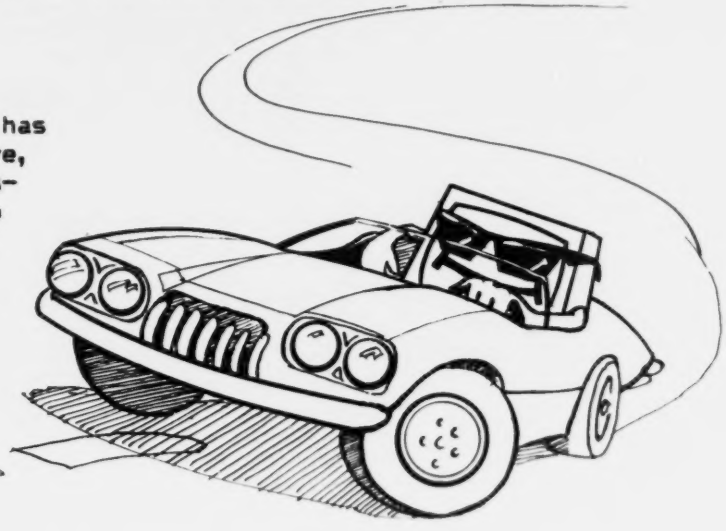
OPERATING SYSTEM SKILLS

FIVE BASICS TO OPERATE A COMPUTER

There are several tasks related to an operating system that are necessary to be able to use a computer effectively. The procedures for doing these will vary from system to system. However, the following five basic tasks remain the same.

Changing Drives

If the computer has only one disk drive, then it is obviously impossible to change drives. Most computers though, have two drives. These are generally labeled A and B, 1 and 2,



or 0 and 1. The A, 1, or 0 drive is always the dominant drive. This means it is the one in which you put the operating system disk or the software. The B or 2 drive is for the file or data disk. If drives are stacked, then the A drive is generally on top. When they are side by side, the left drive is generally A. Look at the computer and see how the drives are labeled.

Each operating system and software program has different conventions for changing drives. CP/M and MS-DOS for example, require that when presented with the prompt A), drives are changed by typing B: and then Return. AppleDOS uses the symbols D1 and D2.

The manner in which drives are changed depends not only on what operating system is being used but also what software is currently running in the machine. The conventions of each operating system and software must be learned so that information can be stored properly. If a drive is not properly specified and you try to record information on a disk that is full or protected, the information will be lost or perhaps the operating disk will be damaged.

Formatting/Initializing

PREPARING BLANK DISKS FOR USE

Formatting (or initializing as it is called on some systems) is the process by which a blank disk is prepared to function within the operating system of the computer. This procedure will vary from system to system. Generally, it is a program labeled as such on the master system/utility disk of the computer and has instructions included in the program on how to use it. The manual will also have instructions on how to format.

CAUTION: A disk must be formatted before it can be used. Any attempt to store information on an unprepared disk will result in an I/O error and the information will probably be lost. Always format disks immediately when you get them and label them as such.

Directory or Catalog

All operating systems have a vital function called the directory or catalog. This allows you to view the names of all of the files on a disk. You can imagine how important this function is. If you don't know how to get the directory, you won't know where information is. The most common command to get the directory is DIR, which is used by CP/M, MS-DOS, and TRS-DOS. The Apple uses the command CATALOG.

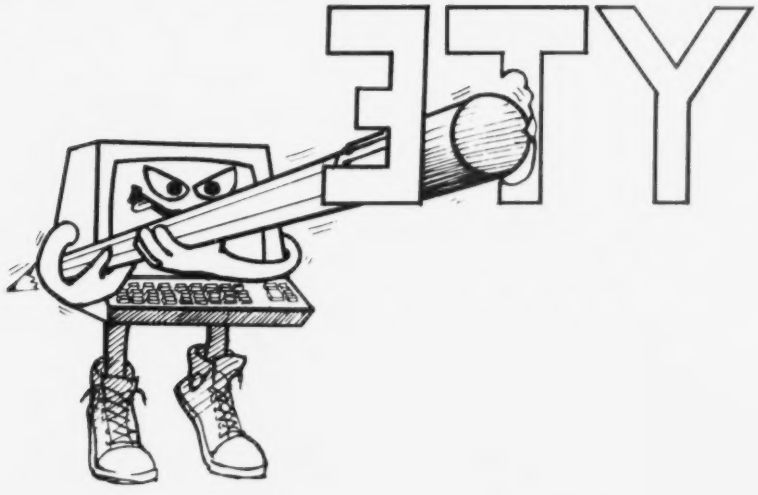
Create and Save

Creating is simply the process of entering something at the keyboard that has value to you as the user. This may be a program, a set of calculations, or a text document.

If work may be needed at a later date, it must be SAVED on a disk for future reference. This is usually done with the command SAVE followed by the drive number and the name of the file. This is by no means the only way a file can be written to a disk. Every system and piece of software will have a different technique. Examine the manual to determine precisely how the computer and software saves files.

Erase or Delete

Another important function in all operating systems is the ability to remove files. Called erase or delete (ERA or DEL), this procedure removes the file from the disk. Always think carefully before doing this. Once a file is erased it can never be recalled. The procedure for erasing a file is generally: at the prompt, type ERA (or DEL), specify the drive and the exact name of the file you wish to delete, and hit return. The drive will whirr and usually the computer will respond with a message on the screen saying that the file has been removed.



CONCLUSION

The few simple commands presented here are intended to give an introduction to the computer's operating system. It is capable of doing many sophisticated things. As you use the

computer and study the manual, it will become obvious that there are many useful applications. It is worth the effort required to learn to use these tools.

One final note: as microcomputer technology progresses, operating systems will become easier to use. One can now find computers that respond to a person touching a place on the screen-- causing it to perform a particular function that once would have required understanding the operating system. Other computers use a "mouse," a hand-held device that can be used to move the cursor around on the screen and to execute particular functions by just pushing a button. As computers become more sophisticated, many of the things a person needs to know to operate a computer today will be built in. Computers are exciting to work with because the field is constantly changing and there is always something new to learn.

Activity One: Define terms in glossary.

Activity Two: Referring to the computer manual, complete Student Worksheet #4 as directed by your teacher.

Teacher: Upon completion of the module, you may want to have the students complete a short program you have designed to initialize/format a disk, save, call up a directory or catalog, and erase or delete text. This type of activity will reinforce learning from module three on the manual.

MODULE FIVE

HISTORY

COMPETENCY:

Outline the evolution of the computer.

OBJECTIVE:

Given a time line, outline the evolution of the computer with 80% accuracy.

ACTIVITIES:

Read assignment
Define terms
Complete study guide

A good reference for additional information is Spotlight on Computer Literacy by Random House.

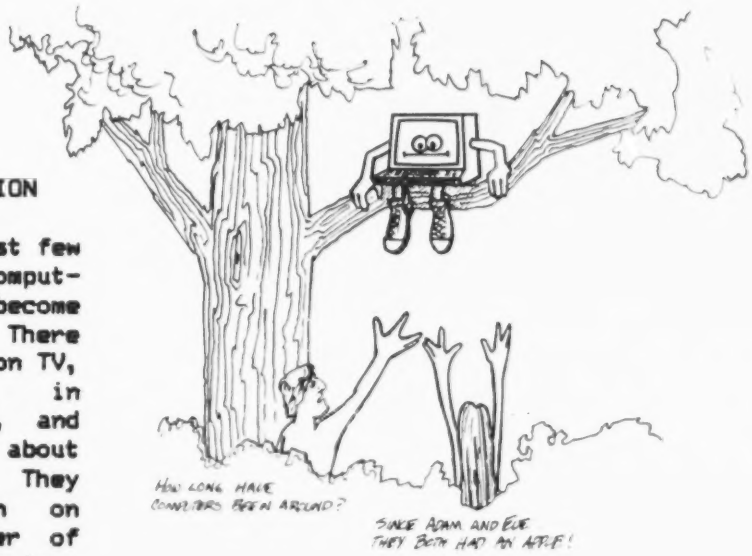
MODULE FIVE

HISTORY

In this module you will be introduced to the following terms:

Integrated Circuits	Minicomputer
Mainframe	Transistors
Microcomputer	Vacuum Tubes

This module can be supplemented well by a lecture.



INTRODUCTION

In the past few years, computers have become famous. There are ads on TV, articles in magazines, and books about them. They have been on the cover of TIME magazine. Schools everywhere have become interested in using them in education. With all the publicity computers have had, it is easy to assume they are a new phenomenon. Actually, this is far from true.

"COMPUTERS" HAVE BEEN AROUND FOR AGES

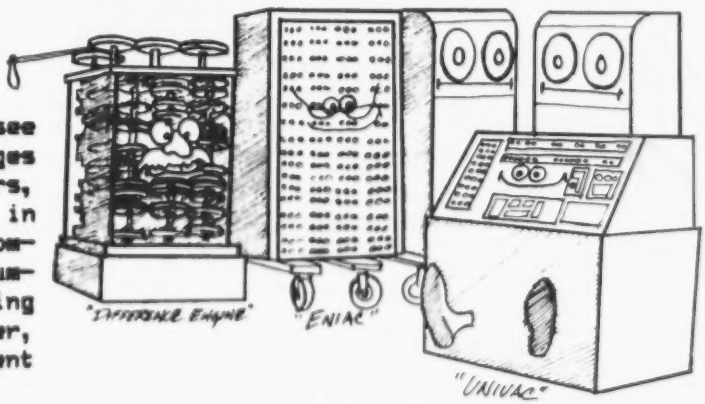
As long as human beings have thought and communicated, they have used devices to aid their ability to think and solve problems. You have undoubtedly used "computers" many times in your life. For example, have you ever made notes on note cards and stored them in a file box, counted on your fingers, kept a tally of items, put a note on a bulletin board, or even tied a string around your finger so you wouldn't forget something? While these actions may not seem as complicated as using a modern computer, the principles are the same. In each case you are using some device or "trick" to organize, process, or store information so that you can make a decision on some course of action. This is exactly what the computer does.

A COMPUTER IS A TOOL

A human being must first have a problem that needs solving and then develop a device or machine that can aid in solving the problem. A computer by itself can do nothing. It is a tool that humans can use to aid in their thought and communication. This is important to remember as many people think that computers are "smart". A computer is no smarter than a group of file cards in a file box. It is only when a person organizes the information and gives it meaning by putting it to use that it has any value.

As you read the chapters on the history of the computer, you will be surprised at the many devices humans have invented and used to help make their work and lives easier. From the fingers and marked stones, to the abacus and logarithms, on to the Pascaline, Napier's Rods, and Babbage's Difference Engine, people's efforts over the centuries have slowly developed today's computers.

Today we see rapid changes in computers, especially in the microcomputer. Consumers are looking for sleeker, more efficient models.



Activity One: Define terms in glossary.

Activity Two: Complete reading assignment and or worksheet 5a as directed by your teacher.

Activity Three: Complete Student Worksheet #5b.

Additional Activity: Research or write the next chapter in the history of computers. How might they be used in the future? Let your imagination soar!

MODULE SIX

PERIPHERALS

COMPETENCY:

Operate printer and modem.

OBJECTIVE:

Using a printer and modem, complete checklist with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Student Worksheet #6

Another good module for supplementing with a lecture or additional reading.

MODULE SIX

PERIPHERALS

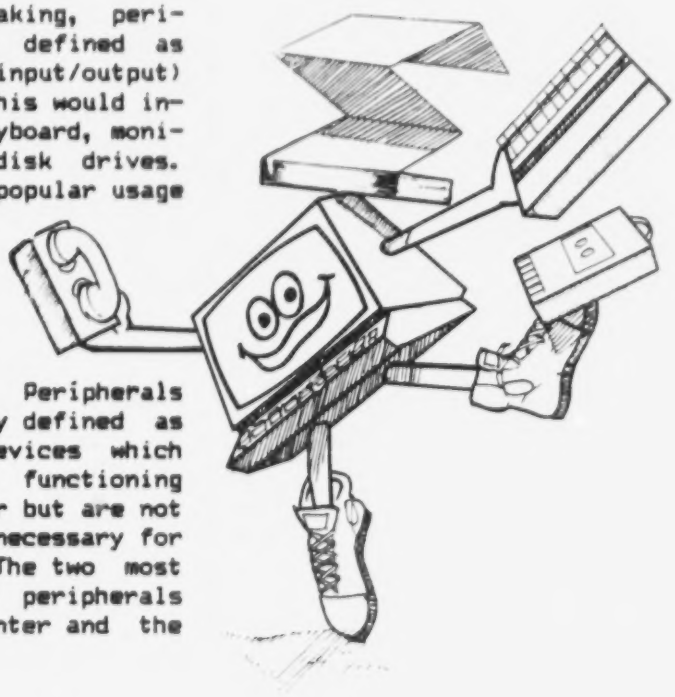
In this module you will be introduced to the following terms:

Daisy Wheel Printer	Electronic Mail	Modem
Direct Connect	Hardcopy	Peripherals
Dot Matrix Printer	Interface	Ports

INTRODUCTION

WHAT ARE THEY?

Strictly speaking, peripherals are defined as all I/O (input/output) devices. This would include the keyboard, monitor, and disk drives. However, in popular usage these I/O devices are referred to as integral parts of the computer itself. Peripherals are generally defined as those I/O devices which enhance the functioning of a computer but are not absolutely necessary for its use. The two most common such peripherals are the printer and the modem.



PRINTERS

HARDCOPY

Printers make it possible for the information stored in a computer to be changed into a printed form. This is commonly called "hardcopy." The advantages of a printed copy of information are too numerous to list. An obvious one is that it allows someone without a computer to view the information. Printed data is less susceptible to damage than information on disks. A printer allows the information to be put into a variety of forms such as letters, memos, ledger entries, or even entire books.

There is an assortment of printers on the market, ranging from the high-speed laser printers (capable of printing 100,000 characters per minute) to plotters which draw diagrams of anything from a house to a space shuttle. The two most common types of printers are the draft quality printer (commonly known as the dot matrix printer) and the letter quality printer (also known as the daisy wheel printer).

DOT MATRIX

The dot matrix printer forms each character by a formation of dots. Each pin in the print head strikes against the ribbon and prints a dot on the paper. The characters are formed when the appropriate pins are struck. The dot matrix printer is fast, capable of a variety of types of printing and is generally less expensive to purchase than other types of printers. The major criticism of the dot matrix printer is that the quality of print is not equal to that of a typewriter. Careful examination of the dot matrix print will reveal the dots that form the letters rather than a continuous line. Many dot matrix printer manufacturers have attempted to overcome this limitation by incorporating a "correspondence" mode into their printers. In this mode the printer makes two passes to form a character and partially overstrikes to form the appearance of a more continuous line. Dot matrix printers will print from 80 to 200 characters per second (cps). In the correspondence mode the speed is reduced to 40 to 60 cps.

DAISY WHEEL

The second popular type of printer is the daisy wheel printer. The daisy wheel printer prints fully formed characters the same as a typewriter. In fact there is no difference in the print quality of a daisy wheel printer and an electronic typewriter, as they may use the same print wheels. While the quality is better than for a dot matrix printer, the print speed is considerably slower. A daisy wheel printer will generally print between 18 and 50 characters per second.

CONNECTING COMPUTER AND PRINTER

Connecting a printer to a computer appears easy, and indeed it often is. Most computers have connections on the back of the case known as I/O (Input/Output) ports. The port or connection can be one of two types--serial or parallel. To connect the computer and printer the ports on each must be the same. The actual method of hookup of one device to another, the computer to the printer, is referred to as the interface. Just as with ports, interfaces can be serial or parallel.

SERIAL INTERFACES

Serial interfaces are more widely used than parallel. The methods for connecting serial ports are easier to use and to understand. A serial interface does not limit the placement of the printer to within twenty feet of the computer, as a parallel interface does. Serial connected printers are more likely to be found in business settings with multiple user systems, where a printer might be needed at a location some distance from the computer.

ARE THE PERIPHERALS AND COMPUTER COMPATIBLE?

If a computer and its peripherals are not purchased as a total package, it is necessary to determine if the ports are compatible. This can be done by working with the same vendor, supplying the vendor with the specifications for the computer as found in the owners manual, or by physically taking the computer to the vendor and insisting on seeing the computer and the peripheral work together.

PAPER FEED PROBLEMS

Instruct the students how to change the paper and ribbon if you feel it is appropriate.

There are two basic types of paper feeds for printers. One is the friction roller and the second is the tractor feed. The friction roller works just like a typewriter and is fed in the same manner. The paper is inserted from the back and the roller is turned, bringing the paper into view under the printing head. The roller is then turned to the start of the next full sheet and the bale is snapped back into place. A friction roller can use either fan-folded paper or individual sheets.

The tractor feed is more complicated but allows higher speed printing. The "tractor" is a set of wheels on both sides of the printer with tabs that fit into the holes punched on the sides of fan-folded computer paper. As the printer advances one line, the tractor turns one notch pulling the paper with it. This allows for smoother, faster, and more precise printing.

Some of the common paper feed problems are: (1) out of paper, (2) paper tension not proper between the two sides of the tractor, (3) paper threaded wrong into the printing head, (4) blockage of paper flow into the printer, (5) paper bail not in the proper position, and (6) friction roller not engaged.

COMMON PROBLEMS

Most printers announce they are out of paper or there is something blocking the proper feeding of paper with a loud buzz or a blinking light. Careful examination of the printer and its paper supply will generally reveal what is wrong. One simple but frustrating problem results when

printing of a document begins someplace on the page besides the beginning. Before beginning to print, always check that the paper is in the right place and the printer is on.

MODEMS

ONE COMPUTER CAN "TALK" TO ANOTHER

Modem stands for MOdulator/DEModulator. It encodes and decodes computer signals into telephone tones and back. Its purpose is to transmit and receive electronic information. Any computer can talk with any other computer as long as transmission speed, word length, stop bits, and other protocols are set the same.

Information sources available to computer users and made available by modems include commodity prices (everything from the price of pigs in Iowa to the price of gold in Hong Kong), databases, library services, the latest news, transportation schedules, and research information, among others. The use of computerized information sources and databases is growing rapidly and changing the nature of business and education.

To access an information source one needs five things; (1) a computer, (2) a modem, (3) a communication software package, (4) a telephone line, and (5) subscription to an information source. There are two basic types of modems, a variety of communication packages, and an increasing number of information sources.

The two types of modems are the direct connect and the acoustic coupler. The direct connect has a telephone line attached directly to the computer. The software package then generally dials the desired number and gains access to the database. The acoustic coupler requires that the user dial a telephone. When the source is reached, the telephone receiver is placed in a mounting device that translates the sound into electrical impulses that the computer can read. Transfer speeds for most microcomputer modems are either 300 or 1200 baud (no one seems to agree on the definition, but a baud is something like bits per second).

Each database and communication package works differently; however, certain things are common to all. The basic procedure is as follows: The computer is turned on and the communication software is called up. The phone line is hooked up and the source contacted.

Once the source is reached some sort of password, code word, or number is required for entry into the database. After entering the database the user has access to the source's index and can begin looking for the specific piece of

information desired. Once it is found, the data can then be "downloaded" (transferred) onto a disk in the user's computer and read at leisure.

Most information sources operate on a subscription basis. The user must pay a monthly fee, a fee for each time the database is used, and generally must pay for the phone call. The price for information sources varies. Some medical and legal sources are very expensive, while many general purpose databases are quite reasonable. The amount of information available via a computer is staggering and growing at an ever-quickening pace.

ELECTRONIC BULLETIN BOARDS

One of the most popular information applications is the electronic bulletin board. This is an information source by which the users communicate with one another rather than a database. Literally hundreds of these bulletin boards have sprung up in the last few years. They deal with subjects ranging from the exchange of esoteric scientific data to electronic dating services. Electronic bulletin boards are expected to grow in popularity and use.

The use of modems to transmit information is becoming invaluable to traders and brokers, researchers, doctors, law enforcement, and to general business. Electronic mail is becoming increasingly important as a means of conducting business swiftly and efficiently. Some theorists suggest that in the future much of the day-to-day business will be done at home and transmitted all over the world with computers and communications devices.

ELECTRONIC MAIL

An increasing use of computerized equipment is to set up electronic mail services to send information. The system involves computer terminals, teleprinters, telephone lines, photocopiers, and wordprocessors. Written documents--ranging from personal letters or business memos to books--can be transmitted through electronic mail.

Most users find that sending information through electronic mail is faster, less expensive, and more reliable than the old U.S. mail. In fact, the U.S. Postal Service now has an electronic mail service. People who are on an electronic mail system check their electronic mailboxes periodically to see if they have any mail or messages, just as they would check their regular mailboxes.

The difference in speed between physically sending a letter, traditional style, and sending something through electronic mail, can be seen in the method. Without electronic mail, a

letter is dictated or composed, typed or printed out, checked, perhaps retyped or printed again, placed in an envelope, and mailed. As many as 4 days later, it arrives at its destination. Using electronic mail, the letter can be composed at the terminal, checked and corrected, and transmitted. It can be sent to a single destination or several, in seconds--whether to someone in your office building or to someone across the country.

Activity One: Define terms in glossary.

Activity Two: Complete student worksheet #6 as directed by your teacher.

MODULE SEVEN

IMPACT

COMPETENCY:

Describe the impact of the computer on society in the areas of privacy, crime and work.

OBJECTIVE:

Given cartoons, describe the impact computers have had on society in a written essay format.

ACTIVITIES:

Read assignments
Share implications on the societal effects of computers from cartoons.

Utilize recent computer-related cartoons as idea starters for students to write paragraphs on the impact of computers.

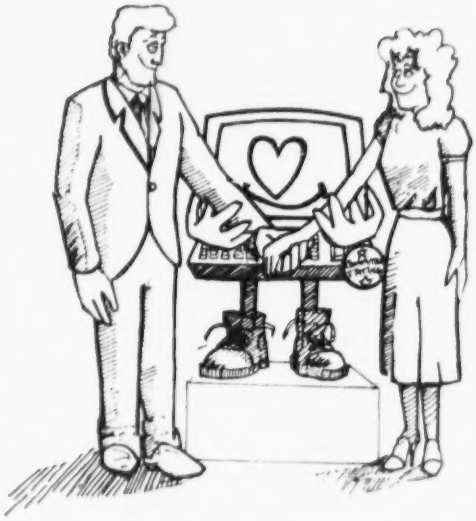
MODULE SEVEN

IMPACT

INTRODUCTION

COMPUTERS ARE CONSTANTLY CREATING CHANGES IN OUR LIVES

An old proverb states that the only thing that is constant is change itself. Nowhere is that more true than in the computer field. This module looks at some of the ways that computers are changing the way we work and do business, how they affect our relations with each other and the government, and the manner in which society itself is beginning to change in response to the impact of computer technology.



This is a good activity for part of your class if only a small number of computers are available.

Perhaps you are not aware of some of the changes computers have already made in your life. Have you ever gotten or watched someone get money from an automatic teller machine at a bank or even in a convenience market? Automatic tellers have become possible because of developments in computers. Video games are very specialized computers with sophisticated graphics. A use of computers that you are already aware of is in standardized testing. Answers are marked on a special sheet with a dark pencil and then a computer with an optical reader scores the test.

The computer you have used the most you are perhaps not even aware of: the telephone. Everything that happens when a phone call is made is controlled by a computer. Beginning with getting the dial tone, then connecting with the right number, and even in the printing of the bill, computers control the process.

As computers become more sophisticated and as people find more ways to put this tool to work, they will have an increasing impact on how people live. Some of the ways in which society will change the most are: how work is defined; how it is done; and how information is processed, used, and protected.

JOBS CHANGE BECAUSE OF COMPUTERS

Jobs are already changing as a result of the impact of computers. The modern office of today bears little resemblance to the offices of even 30 years ago. Clerical work, bookkeeping, information processing, inventory control, and management have all changed.

One of the great changes in work is just beginning. Robots in the last few years have ceased to be just creatures in science fiction stories and are being used in a variety of industries. As this trend continues, many jobs once done by semi-skilled and even skilled workers will be performed by machines. This means that many people will have to re-learn how to make a living several times in their lives.

SOCIETY CHANGES BECAUSE OF COMPUTERS

Computers are having a great impact on society through the use of information processing. For the first time in history it is possible for a person to access much of the information available to the human race. This information may be as complicated as all of the mathematical calculations that Einstein used to support his Theory of Relativity, or as simple as whether or not you balanced your checkbook last month.

The implications of this availability of information on education, human rights, privacy, and the ability to learn and to adapt are incredible. People are just beginning to explore the possible effects of this "information revolution" on society. As you read these chapters on computer applications, robotics, computer crime, and the future, try to think about how the use of computers effects you. Also, what contributions might you be able to make to the use of this new tool?

Activity One: Read an additional assignment as directed by your teacher.

Activity Two: Complete Student Worksheet #7.

MODULE EIGHT

CAREERS

COMPETENCY:

Identify careers in computing and occupations which use computers as tools.

OBJECTIVE:

Given a list of computer career descriptions, identify the careers with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete study guide

MODULE EIGHT

CAREERS

In this module you will be introduced to the following terms:

Computer Operator	Programmer
Computer Technician	Systems Analyst
Data Entry/Keypunch Operator	

INTRODUCTION

The world of work is changing so fast that it is hard to keep up with the new developments. Many people have difficulty adjusting to the changes and want to hold on to the former ways, as illustrated by the cartoon. This process, which has been going on since the industrial revolution, began in the 1850's and has continued to accelerate. Three major factors have caused these changes in the nature of work. The first is technological change. The second is a change in consumer demands, and the third is an alteration of societal expectations. These three factors are all interrelated, with one sometimes giving rise to the others.

TECHNOLOGY CHANGES WORK

The impact of new technology on the nature of work is one of the easiest changes to see. A good example of this is farming. A hundred years ago almost 80% of all Americans made their living as farmers. Today only about 3% of the population are farmers. This reduction in the number of farmers has been accompanied by massive increases in productivity. New tools, machines, and procedures have enabled fewer people to do more work. There are also a great number of people employed in farm-related fields that didn't previously exist. Examples are farm machinery repair, fertilizer sales, and grain elevator operation. Examples like this can be found in every industry in America. As people invent new and better tools and processes, it takes fewer and fewer workers to do the same job but it also creates new jobs.

Consumers' changing demands for goods and services also alter the nature of work. These demands are related to the new products that technology creates. An example is the whole field of home computers. If engineers and technologists had not been able to build small, simple, and inexpensive computers, there would be no home computer market.

In addition to the desire for new things, consumer demands for new services create many new types of work. The current boom in physical fitness has resulted in health spas, weight rooms, and workout centers, all of which need skilled people to help provide services the public wants.

Acknowledging this continuous change in the world of work, it is possible to put the field of computer-related careers into some kind of perspective. The job market for people with computer skills is growing rapidly. The U.S. Department of Labor says that by 1990 there will be a nearly 50% increase in computer-related jobs and that over 80% of all jobs will use or relate to computers in some way. The computer, like other new tools before it, is allowing fewer people to do the work more efficiently.

Computer careers can be broken down into three major categories. The first is the technical careers of computer scientists, engineers, and developers. The second is the operations careers. The third group is the vast majority of occupations which will use computers as tools.

TECHNICAL CAREERS

The technical careers require the most training and specialized skills. These people are involved in developing new hardware applications. Normally, careers in this field require a minimum of a college degree and some experience. It is important to note that while this field is growing rapidly, it is not where the largest number of people will be employed.

OPERATIONS CAREERS

The operations careers involve jobs which install, maintain, and run computers. These occupations range in complexity, from keypunch operators who require a few weeks of training before getting a job, to systems analysts who generally need a college degree. In between are all levels of repair people, technicians, data entry people, and programmers. This is one of the fastest growing fields of work in America today.

CAREERS USING COMPUTERS AS TOOLS

The final category of computer careers involves people who will use computers as tools in their day-to-day work. There are few occupations today in which computers are not used. The use of computers in business and industry is expected to accelerate within the next twenty years. This produces a situation in which people entering the world of work not only need all the traditional skills (ability to read, write, do mathematical computations, communicate, and work well with others), but also, they need to be familiar with some of the many applications of computers in the world of work.

Certainly careers in computers are going to continue to change rapidly. Everything we know about computers now will probably be different in ten years. If you are the type of person who likes to learn, to adapt, and to find new ways of doing things, then you might enjoy a career in computing.

Activity One: Read an additional assignment as directed by your teacher.

Activity Two: Define terms in glossary.

Activity Three: Bring into class the job ads from the classified section of a Sunday edition of a newspaper. Circle that portion that refers to computer skills.

MODULE NINE

WORDPROCESSING

COMPETENCY:

Demonstrate proficiency in microcomputer wordprocessing software usage.

OBJECTIVE:

With a computer and compatible wordprocessing software, enter and edit a letter as directed and complete the Wordprocessing Keystroke Command Summary with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Student Worksheet #9
Complete wordprocessing program activities and revisions with 80% accuracy.

MODULE NINE

WORDPROCESSING

You will be introduced to the following terms in this module:

Cursor	Right Justify	Search & Replace
Dedicated Wordprocessor	Print	Wrap Around
Format	Save	Wordprocessing

INTRODUCTION

Wordprocessing is becoming a commonly used term. The cartoon below would suggest that it has been around for years. This interpretation of wordprocessing is very general but is correct in that it involves the manipulation of words. Most modern offices are equipped with a computer and software package that combines typewriter capabilities with computer storage. Thus a letter, memo or document is entered on the computer's keyboard, appears on the screen, and can be saved to a disk. The wordprocessing package allows for adjustments of margins, spelling, and paragraphs without retyping the letter. With the letter stored on disk, multiple copies can be made or a few details can be changed without retyping the letter.

A FUNDAMENTAL SKILL?

Many experts in the field of computer literacy argue that wordprocessing is the fundamental skill in computer use. Certainly, the use of wordprocessors is the fastest growing and most widely used computer application. Virtually every letter, bill, advertisement, or response from a business is produced by someone using a wordprocessor.

EFFICIENT

The use of wordprocessors in this society has grown rapidly for three reasons. First, the wordprocessor integrates a series of functions that used to be handled separately in an office. One person with a computer can type, edit, format, print, file, and distribute a letter in a very short period of time. This allows much more efficient and productive work, hopefully reducing the cost of goods and services to the public at large.

FLEXIBLE

Second, a computer used as a wordprocessor is much more flexible than traditional office methods. Editing for letter-perfect documents, which was a major source of frustration for the secretary, is now relatively easy. Repetitive types of correspondence can be done once, stored, and called up whenever needed. Also, the computer makes the storage of documents quicker and easier, and requires much less space.

HANDLES LARGE QUANTITIES WITH EASE

The final reason for the growth of the use of wordprocessing is the incredible information explosion. A commonly quoted statistic maintains that 75% of all the data in existence today has been produced since 1960. The total volume of information available in the culture as a whole is doubling every five years. With these figures in mind, it is easy to see why word and information processing has had to be automated.

Wordprocessors are used by every type of profession, business, and industry. They are used in all levels of government, schools, and hospitals. They are even beginning to be used in the arts. The need for skilled wordprocessor operators far outstrips the supply, and this trend is likely to continue for some time.

DEDICATED WORDPROCESSOR

There are two basic types of wordprocessors--a "dedicated" wordprocessor and a microcomputer using wordprocessing software. A dedicated wordprocessor is not one that works harder; rather it is a machine designed so that it can only be used to process documents and information. These devices often have highly specialized keyboards with unique function keys controlling cursor movement, editing, formatting, and printing. They are generally faster, more efficient, and capable of much more production than a microcomputer. Dedicated wordprocessors are usually only found in offices

with high volumes of work. This is due to their expense and limited function of only producing and storing documentation.

WORDPROCESSING SOFTWARE

A microcomputer with wordprocessing software is not as fast nor as efficient as the specialized machine. They often lack most of the special function keys which can greatly speed work. However, a microcomputer is much less expensive and more flexible. They are found in many small businesses, homes, and also in large businesses.

A microcomputer functioning as a word processor generally needs two disk drives. The software goes in the dominant drive and a formatted data disk goes into the second drive. A wordprocessing program is a lengthy and complex device. It will generally completely fill a disk, thus the second drive is needed for document storage.

Since the microcomputer lacks most of the special function keys that a dedicated wordprocessor has, its functions are controlled by keystroke commands. Keystroke commands vary from program to program, but generally consist of the Control or Escape key pressed in conjunction with another key or keys. A specific sequence will cause the computer to do a particular operation, e.g., move the cursor, delete, save a file, or print a file. To effectively use a wordprocessing program, these command sequences must be learned. Fortunately, software publishers have gone to great lengths to make their software as powerful, flexible, and easy to learn as possible.

One important note should be made. Many microcomputers have some of the special function keys similar to those of a dedicated wordprocessor. When these exist it makes a program easier to learn and use.

Wordprocessing programs are of two major types: a menu driven program and a prompt driven one. The menu driven software begins by presenting a screen full of information much like the menu in a restaurant. The operator selects the desired operation and the computer executes it. The prompt driven program begins by asking the operator to select what he wishes to do and then executes the program in response to instructions. Menu driven software is by far the most common and is generally easier to learn. The prompt driven software is harder to learn but is faster to use once it has been mastered.

THE COMPUTER SENDS YOU MESSAGES

The "message" is another important piece of information that the program will give as it is executing commands. This occurs in both menu and prompt driven systems. The message is the computer attempting to communicate with the operator.

Messages can be simple ones telling you to wait while a procedure is being executed or that it has been executed. A more complex message is one which informs the operator of potential difficulty or error. PAY ATTENTION TO THE MESSAGE!! It can save you a lot of grief.

BASIC FUNCTIONS

All wordprocessors, be they software packages running on a home computer or a highly specialized dedicated wordprocessor, have four basic functions. These are editing, saving, formatting and printing. The following is a general description of these functions. You must refer to the documentation that comes with your specific software for details and information.

Following is a general description of these functions. You must refer to the documentation that comes with your specific software for details and information.

Edit (Create)

MAKING CHANGES WITH EASE

Editing is the first basic function of any wordprocessor. It may be defined as the act of creating a document and then manipulating the text until it is in the desired state of completion. This function includes the operations of entering text, moving the cursor, deleting, inserting, wrap around, and search and replace.

CURSOR MOVEMENTS

The cursor is that blinking line or dot where letters appear on the screen as you type. All wordprocessors provide for several ways to efficiently move the cursor. These commands may be different from system to system but the effects will be the same. Common types of cursor movements include one character forward or back, one word forward or back, previous or next line, beginning or end of paragraph, and to the beginning or end of the document. Scrolling is the process by which the computer moves through a document one full screen at a time. This is a very useful command for scanning a long document.

Unless you are a perfect typist who always knows precisely what you want to say, you will make mistakes. These are easy to correct. Move the cursor to the mistake and delete the letter, word, line, paragraph, or page. Again, the specific command to make the computer perform these operations will vary from system to system, but the principles are the same. Once the offending letters have been removed, type in the correct ones. WARNING: Once you delete something it is gone, so make sure you really want to dispose of it.

Two major operations distinguish the wordprocessor from the typewriter. The first is "insert" and the second is "wrap around". Insert is the procedure whereby the computer creates a space for a new character to be entered into a line of the text. In the insert mode you cannot type directly over an existing character. Even when the cursor is on a letter, as you type another one it will be inserted rather than deleting an existing letter. On most wordprocessors, the insert can be turned on or off. Experiment with this while turning the insert mode on and off, noting the difference in the way text is entered.

NO NEED TO USE A "RETURN" KEY

The second difference you will note is the fact that the computer automatically returns the cursor to the left side of the screen when the right end of the line is reached. This is called "wrap around." The text is said to wrap around the screen. The only time that the return key is used is to start a new paragraph. If you are accustomed to using a typewriter it will probably take awhile to adjust to not using the carriage return at the end of each line. However, once you become used to it, you will find that wrap around is faster and easier to use. Some wordprocessors allow the wrap around feature to be turned on and off like the insert mode. Again, experiment with the computer and the wordprocessing manual to see how it works.

"SEARCH AND REPLACE"

Another important feature of the editing process is the "search and replace" mode. This is a procedure which can be used to replace all occurrences of a wrong or misspelled word.

For example, suppose you have written a long letter to the principal of your school suggesting that something be done about a problem in the school. In the course of the letter, you refer to the principal by name six or seven times. After the letter is finished and mailed you decide that you want to send the same letter to the superintendent. Instead of going through the entire document and changing the name each time, the search and replace mode can be called up. The name to change is identified and the name to change it to is identified. When the return key is hit the computer will automatically make the changes. You can imagine how much time this would save if you had to do this type of thing every day.

Save

The second basic function of any wordprocessor is saving. Saving is the process by which the text entered onto the screen is stored on a disk for future use. It is very important to know how to save documents because what is on

the screen is only in the RAM memory and will be lost when the computer is turned off. By saving the document on a disk, it will be available to call up and work on or use later.

CAUTION: SAVE OFTEN!! Fluctuations in electrical current, lightning strikes, a computer accidentally turned off, and a number of other things can cause a loss of information stored in the temporary memory. Save regularly to prevent severe loss and frustration.

When saving a document it is important to know the file name conventions of the system in use and the different types of files. Check once again the file name conventions of the word processor you are using. Keep them in mind whenever you are naming a file.

NEW FILES

There are five major types of wordprocessing files: new, existing, renamed, and backup. A new file is one that is being created for the first time. It must be named and saved in a particular way. Study the wordprocessing manual for the command sequence which will save a new document.

EXISTING FILES

An existing file is one that has already been created and is being called up again to be edited further or used. Most often the procedures for creating a new file and calling up an existing one are identical. The only difference is that when you are asked for the file name you specify the name of an existing file rather than creating a new name.

RENAMED FILES

A renamed file is one you wish to distinguish from a previous version. For instance, when you work on and save an existing file, any changes you have made will be retained and will overwrite the earlier version. If you wish to retain the different versions of the document separately, you must name each edition differently.

BACKUP FILES

A backup file is one that the wordprocessor automatically creates to protect your files from accidental loss. Not all wordprocessors do this but it is a comforting feature. Generally, a backup file must be renamed before it can be used.

Finally, a print file is one that has been formatted and is ready for printing. Not all wordprocessors use this type of file. Some print directly from the edited file, while others format and then print in two operations. The manual will explain how your wordprocessor works.

COMMON WORDPROCESSING PROBLEMS

Several common problems occur for most people just learning wordprocessing. The first problem is with the file name. You keep trying to get an existing document back, but don't

succeed. Check the spelling and placement of the extension. A computer is a very literal device. It is not able to tell that the file wanted is spelled one letter differently than what you are asking for and will keep responding that the file does not exist. If you have difficulty calling up a file, call up the directory of file names from the data disk and check the exact spelling.

The second problem often occurs when the proper drive is not specified when saving or recalling a document. Generally, a file cannot be saved to the disk that the wordprocessing program is on. It is usually too full. Doing this will at a minimum be frustrating and at worst could cause the document to be lost. When recalling a document make sure that you are specifying the proper drive. The computer can only read one drive at a time. If you are asking drive A about a file that is on drive B the computer will not be aware of the existence of the file. Learn to always specify the drive when saving or calling up a file.

A third difficulty can arise when saving a document to a disk that is too full. This can be prevented by checking to see how full the disk is at the beginning and estimating how much space the file will take. If there is any doubt, use another disk.

Format

Formatting is the process by which the text is arranged on the page for printing. It is the third basic function common to all wordprocessors. All wordprocessors have what is known as a default setting. This default setting is a standard layout the computer will use to print a document unless instructed otherwise. Check the wordprocessor manual to see what the default format is.

Some of the things commonly changed in the formatting process are line spacing, centering of titles and headings, line length, lines per page, justification, and the manner in which the pages are numbered.

The procedure for changing these items varies from program to program. Some require the format to be set before text is entered. Others complete the document and then format as a separate step. Still other wordprocessors make use of commands inside the text of the document to cause special effects when printing.

Formatting is a procedure which laps over into both the editing and printing processes. One operation which is used for both formatting and editing is called the block copy and

move. This is used when it is desirable to move an entire section of a document from one place to another. The procedure is the same in most systems. First, the beginning and the end of the block is marked with special characters. The text is then copied, moved to its new location, and recreated. This device saves time and effort.

Many of the commands necessary to change the format are known as embedded print commands and are written into the text of the document as it is being created. Much of the formatting process is inseparable from the printing process.

Print

Printing is the final function common to all wordprocessors and is the procedure which makes the document appear on paper. As in formatting, most wordprocessors have a default print setting. In fact, the default for print and format may be the same. Changing the default print settings can be done in two ways: by the use of embedded print commands and by changing items from a menu or in response to prompts as the printing process begins.

SPECIAL EFFECTS

Many special printing effects are possible, depending on the capabilities of the wordprocessor and the printer. A good print program can number the pages in any order desired, stop for the insertion of single sheets of stationery, create indexes and tables of contents, chain multiple files together, and include standard blocks of text from other files.

The use of embedded print commands can cause the printer to underline, boldface, italicize, create new pages, print special characters from foreign languages or mathematics, and create footnotes. All the capabilities need not be learned by the beginning wordprocessor. In fact, there is no real need to learn them unless they are going to be used. Most people need very little more than the default format and print settings which come with the wordprocessor.

CAUTION: The more powerful a wordprocessing program is the more time it will take to master it. Don't let the number of items to be learned overwhelm you. A few simple, basic commands will do most of the things you need in the beginning.

Activity One: Enter the following paragraphs - complete the following steps.

EDITING AND FORMATTING

Two of the primary functions of a word processor are editing and formatting. In learning to use a particular word proceeding program, most of the functions you learn to use are either editing or formatting functions.

After saving a document on a disk, you can always recall it and do further editing if needed. Various refinements and alterations can be made in the document without retyping the whole thing.

When you're editing, you're concerned mainly with the content of the document. Does the document contain all the information it is supposed to? Is the spelling and grammar correct? Should the words, sentences, or paragraphs be rearranged? You will find yourself using the insert and delete functions. The block-action commands make it easy to make minor alterations in relatively large portions of test. Many of these commands will become automatic for you; others may not be used as often and may require looking up in the help system.

Once you are satisfied with the content, you can then focus on formatting the document. Formatting has to do with how the document will look on a printed page. You will begin to learn aobut formatting functions in the next module.

Activity One for Module Nine - Steps

STEPS

1. DELETE the word "particular" in the second sentence of the first paragraph.

2. INSERT the sentence "This saves valuable time." after the first sentence in the second paragraph.

3. In the first sentence of the third paragraph, change both occurrences of "you're" to you are". Use the REPLACE command. OA-R

4. Break the third paragraph into two paragraphs. The new paragraph should begin with "You will find . . .".

5. Delete the last sentence in the last paragraph. OA-Y

6. Change "proceeding" to "processing" in the second sentence of paragraph 1.

7. Using the MOVE command, move the second paragraph to the END of the test, making it the last paragraph.

8. It appears that the paragraph beginning "Once you are satisfied . . ." should be the final paragraph. Use the MOVE command to move that paragraph to the end.

9. Use the REPLACE command to replace each occurrence of "alterations" with the simpler word "changes". Look through the text to be sure that the replacements have been made.

10. SAVE using the Filename: WP1

11. Print the edited file and turn it in to your teacher to sign off.

MODULE TEN

DATABASE

COMPETENCY:

Demonstrate proficiency with a microcomputer database.

OBJECTIVE:

Given a computer and compatible database system, enter and edit a sample database and complete the Database Command Summary with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Keystroke Command Summary
Create a database

MODULE TEN

DATABASE

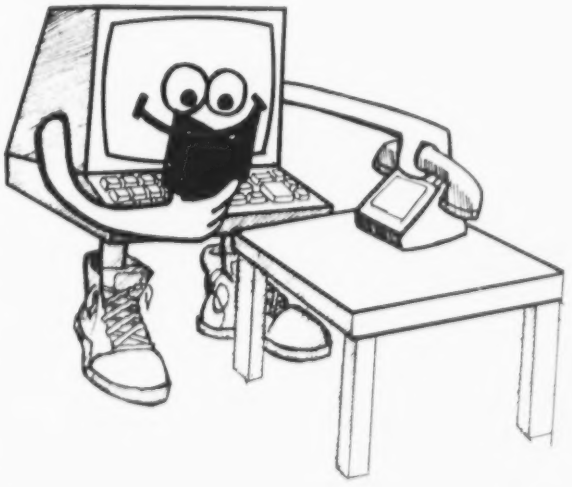
In this module you will be introduced to the following terms:

Database	Field Size	Record
Field	Field Type	Relational Database
Field Name		

INTRODUCTION

ISOLATED INFORMATION

Data and database are two terms that the increasing use of the computer has popularized to the point of becoming "buzz" words. Data is an isolated piece of information that is of little use when it is out of context. A database organizes information in such a way that it has meaning and is easily used.



If you had a phone number (data) by itself it would be of little use. If you had the phone book (database) the number would be related to other information, such as names or addresses and thus be useful.

Databases are not limited to computers. We all use some kind of database in everyday life. The phone book mentioned above is a good example of a commonly used database. Other examples of frequently used databases include dictionaries, address books, recipe file boxes, mail order catalogs or library card catalogs.

What is the value of a computerized database? Certainly, there are some things that can be performed more efficiently without one. A good example of this would be a personal address book. It's inexpensive, portable, easy to update, and has plenty of capacity for most people's needs. As you know, a computer can only do what a human being can do.

It's advantage is that it is much faster, can store more information, and if programmed properly, makes fewer mistakes.

ADVANTAGES OF COMPUTER DATABASES

One of the nice things about a computer database is that it can look up a specific piece of information under any of its headings. Using our example of an isolated phone number, if we knew that this was a Phoenix phone number and the computer database contained all of the Phoenix numbers, the number could be entered and the computer could provide the name and address of the person associated with it.

All databases are arranged to make some piece (or pieces) of information readily available. This feature that a database is organized around is called its key or purpose. For example, the phone book is arranged alphabetically to make it easier to find someone's name. Thus the name is the key to using that database.

THREE TYPES OF DATABASES

Computer databases may be divided into three types: RELATIONAL, HIERARCHICAL, and NETWORK. Hierarchical and network systems are more complex than the relational system, are usually programmed for a mainframe computer, and require extensive designing to satisfy a particular purpose. As the name implies, the hierarchical system shows an organizational chart of sorts, known as a tree. The network system might be used to show ways in which two organizations merge or overlap.

RELATIONAL DATABASES

The relational database is most frequently used on microcomputers and thus will be the topic of this module. It presents data in terms of tables of rows and columns and is easy for most people to use. The layout is similar to a spreadsheet but no calculations are performed.

Databases have their own vocabulary. Figure 10-1 is a sample database; a discussion follows explaining the parts and terms.

This section can be clarified by using a database example on the overhead or board and showing students how to pull information from the various fields.

NAME	SOCIAL SECURITY NUMBER	ACTIVITY CARD
Sam Smart	526-87-3851	Y
John Sampson	865-90-7325	N
Patricia Sanderson	235-37-8367	N
Joe Blackington	923-38-4857	Y
Samson Chartreau	456-34-7465	Y

Figure 10-1. Sample Database

RECORDS AND FIELDS

The horizontal information in a database is called a RECORD and corresponds to a row of a spreadsheet. In the sample all information about Sam Smart would be referred to as a RECORD. A record is made up of fields. The FIELDS run vertically and correspond to the columns of a spreadsheet. Thus the names, social security numbers, and activity card indication would each be a field. The headings across the top of the database are called FIELD NAME. FIELD SIZE refers to the amount of space provided in the database for the entry of data under each field name. Some software programs will have the field size predetermined and offer an option for changing this space, others will ask that the field size be set. FIELD TYPE refers to the type of information that can be entered into each field. Most databases allow for three types of fields: CHARACTER, NUMERICAL, and LOGICAL. In the sample, the individual's name would be an example of a CHARACTER FIELD as it contains letters. The social security number would be an example of a NUMERICAL FIELD. A LOGICAL FIELD is used for data that can be entered as true or false or, for that matter, yes or no. The entry under field name "Activity Card" would be a LOGICAL FIELD since data is entered with a yes or no response.

HOW IS IT USED?

What does one actually do with a computer database? A paper database and a computerized one actually function much the same. Using the example of the address book, the names and addresses of new friends are recorded, and changes (updates) are made as your friends move. Maybe someone moves and contact is lost with them; then they are erased from the book. Most important, when you want to call or write someone you look up their phone number or address in your address book.

A computer database can be used in the same way with its various functions. You ENTER new information, EDIT (or update) existing data, SORT the data according to a particular need, READ (or display) the information for your use, and PRINT (or report) the needed data.

Different databases and filing systems will use different commands to execute these functions. However, the basic operations are the same in all databases; they allow for entry of new data, editing of existing information, reading of the information, sorting by some predetermined pattern, and printing or reporting on the data contained within them.

Activity One: Define terms in glossary.

Activity Two: Use the documentation for the database you are using to complete Student Worksheet #10.

MODULE ELEVEN

SPREADSHEET

COMPETENCY:

Demonstrate proficiency in electronic spreadsheet usage.

OBJECTIVE:

Given a computer and compatible electronic spreadsheet program, enter and edit two sample spreadsheets as directed and complete the Spreadsheet Command Summary with 100% accuracy.

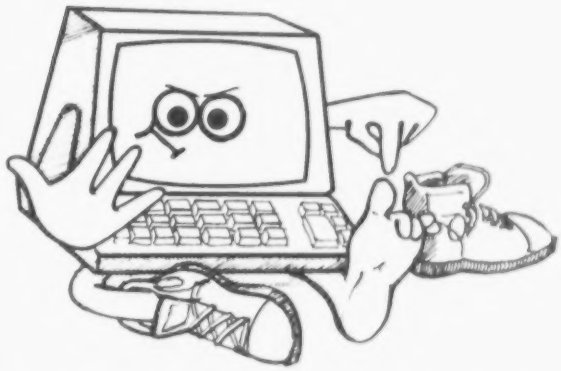
ACTIVITIES:

Read assignments
Complete Keystroke Command Summary
Complete Sample Budget Spreadsheet
Complete Sample Grade Sheet

MODULE ELEVEN

SPREADSHEET

INTRODUCTION



ACCOUNTING AND MANAGEMENT TOOL

No other microcomputer application has received such immediate acceptance as the electronic spreadsheet. It has been used as an accounting and management tool by housewives keeping the family budget, teachers recording grades, small businesses controlling their inventory, and the world's largest governments and businesses keeping track of their complex financial dealings.

A number of electronic spreadsheet programs are available, each designed to meet a particular need or to appeal to a specific audience. While these programs have different names and appear to be very different, they all have many things in common.

MATRIX FOR RECORDING, SUMMARIZING, AND MONITORING DATA

A spreadsheet (whether it is paper or electronic) is a matrix on which data can be recorded, summarized, and monitored. All spreadsheets have five basic parts: (1) rows which are the horizontal lines, (2) columns which are the vertical lines, (3) labels or headings which name the rows and columns, (4) formulas which are used to make the calculations to provide summaries and totals, and (5) the entries which are usually numerical data.

So why has the electronic spreadsheet become so popular? There are actually four reasons. First, spreadsheets are very flexible. They can be designed to summarize data in different forms with relative ease. Second, once the formulas have been entered and fixed, the electronic spreadsheet will automatically remember the formula and recalculate the entire sheet whenever a change in the data is entered.

This leads to the third reason for their popularity. They are very fast and can be used to make projections and predictions based on changes in the data. A skilled

keyboard person can enter data much faster than a person can by hand, and few people could come up with calculations and recalculations as fast as the computer does.

Many of your students may have no idea what a columnar pad is. You may wish to bring one to class.

Finally, the electronic spreadsheet can store an immense amount of data in very little space. One disk can store the same amount of information that used to be contained on several whole columnar pads. This information can be printed out when desired.

Sophisticated business programs can actually summarize and provide reports from several separate spreadsheets into one format. An example of this are tax packages which will do most of the work necessary to make a year-end tax report.

Electronic spreadsheets have been introduced into almost every type of business, industry, and service organization. Their use is continuing to grow rapidly. The ability to effectively handle this type of software is a prime job skill for anyone in management, office work, or bookkeeping.

BASIC SPREADSHEET OPERATIONS

SIMILAR TO WORDPROCESSING PROGRAM

A microcomputer functioning as an electronic spreadsheet has many similarities to a wordprocessing program. Generally two disk drives are needed. The software goes in the dominant drive and a formatted data disk goes into the second drive. An electronic spreadsheet is a very complex and lengthy device. It will usually completely fill a disk, thus the second drive is needed for data storage.

KEYSTROKE COMMANDS

As with wordprocessing, a spreadsheet's functions are controlled by keystroke commands. These command characters will vary from program to program, but generally consist of the Control or Escape key pressed in conjunction with another key or keys. A particular sequence will cause the computer to do a specific thing, e.g. move the cursor, delete, save a file, or change the format of the spreadsheet. To effectively use a spreadsheet program, these command sequences must be learned. It is again important to note that many computers have some special function keys. When these keys exist it makes a program easier to learn and use.

Electronic spreadsheet programs, like those of wordprocessing, are of two major types, menu driven and prompt driven. The menu driven software begins by presenting a screen full of information much like the menu in a restaurant. The operator selects the operation he or she wishes to perform and the computer executes it.

The prompt driven program begins by asking what the operator wishes to do and then begins execution of the program in response to instructions. Menu driven software is by far the most common and is generally easier to learn. The prompt driven software is harder to learn but is faster to use once it has been mastered.

MORE "MESSAGES"

The "message" is another important piece of information that the program will give as it is executing commands. This occurs in both menu and prompt driven systems. A message is the computer attempting to communicate with the operator. Messages may be simple, telling you to wait while a procedure is being executed, or that a procedure has been executed. A more complex type of message is to inform the operator of potential difficulty or error. Again, PAY ATTENTION TO THE MESSAGE!! It can save you a lot of grief.

CURSOR MOVEMENT

Cursor movement is very similar to that found in wordprocessors. In fact, there are several integrated systems where one set of commands will apply to a wordprocessor, a spreadsheet, and a database. This trend in software development toward integrated command systems is growing.

SIMPLE CURSOR MOVEMENT

Movement of the cursor is somewhat simpler in a spreadsheet than in a wordprocessor. Since it consists of only rows and columns, the commands to move the cursor are largely concerned with this type of movement. All spreadsheet programs provide for moving the cursor from column to column, row to row, top to bottom of column, and one end of the row to another.

Spreadsheet matrixes are generally labeled across the top as column A, column B, etc., and down the side row 1, row 2, etc. This set of coordinates allows the cursor to be moved in response to a "Goto" command. The goto command is entered, the specific coordinates are given, and the cursor moves to the specified place on the spreadsheet.

All computers will display only a portion of the potential spreadsheet at anytime. Generally, depending on the size of the computer's monitor, the screen will display about 10 columns and around 20 rows. Most spreadsheet programs are capable of handling sheets of over 50 columns and up to 250 rows. To move around on these larger spreadsheets, scrolling commands are used. These will allow the operator to move in screen-size portions up, down, right, and left. Check your manual to see what the scrolling commands are for the system you are using.

ENTERING

All information on any spreadsheet is of three types: labels, formulas, and entries. Each type of information is handled differently by the program. Labels are the titles that are given to the various rows and columns. These allow the user to know where they are on the spreadsheet and what the particular area represents. LABELS

Formulas are the mathematical equations which will, once they have been entered, do the calculations necessary to summarize and relate the data on the spreadsheet. The labels and formulas provide the framework in which the spreadsheet operates. FORMULAS

Entries are the actual information which the spreadsheet displays. Entries can be words, e.g. the name of the person a check has been written to, dates, and numerical data. All electronic spreadsheets provide different modes for entering these various types of data. ENTRIES

SAVING

Saving is the process by which the information you have entered onto the screen is stored on a disk for future use. It is very important to know how to save your spreadsheets because what is on the screen is only in the RAM and will be lost when the computer is turned off.

When saving a spreadsheet, it is important to know the file name conventions of the system in use and the different types of files. Check the file name conventions of the system you are using. Keep them in mind whenever you name a file.

There are three types of electronic spreadsheet files: new, existing, and renamed. A new file is one that is being created for the first time. It must be named and saved in a particular way. Study your manual for the command sequence which will save a new spreadsheet. NEW FILE

An existing file is one that has already been created and is being called up again to be edited further or used. Most often the procedures for creating a new file and calling up an existing one are identical, differing only in that when you are asked for the file name you specify the name of an existing file rather than creating a new name. EXISTING FILE

A renamed file is one that has its name changed so as to distinguish this version from a previous one. NOTE: When you save an existing file to its original name this new RENAMED FILE

version will overwrite and thus obliterate the earlier version. If you wish to retain the different versions of a particular spreadsheet you must rename each new version differently.

SPREADSHEET DESIGN

All electronic spreadsheet programs come with a default sheet design. This is generally the one that appears whenever the program is first booted. In addition, most programs have a variety of ready-made formats which may be applied to common accounting needs. Some of these could be a personal check balance sheet, a cash flow program, a tax program, and any variety of other specialized uses.

All spreadsheet programs also provide for ways to customize the default layout to meet your needs. More columns or rows can be inserted. Columns may be enlarged. Formulas and labels can be both modified and fixed so they can't be disturbed. The columns of data can be justified in different ways and be displayed as graphs, with dollar signs, decimals, and in scientific notation. Again, each program will vary in what can be done, and the manual must be studied to learn the capabilities of your spreadsheet.

MATH FUNCTIONS

A spreadsheet is essentially a device to aid in the summarizing and manipulating of a mass of numerical data. The electronic spreadsheet has gained such popularity because it can quickly and automatically do these sophisticated mathematical operations. The built-in functions of a spreadsheet vary from program to program. All will add, subtract, multiply, and divide. The math functions a spreadsheet will do beyond these basic operations depends on the power and the precision of the program.

Among the common mathematical operations electronic spreadsheets can perform are: algebraic, statistical (averages, sums, medians, ranges, min/max, and various statistical tests), trigonometric, logical, and relational.

It is beyond the scope of this module to go into these more complex operations as some of them require knowledge of advanced mathematics. However, it is important to be aware of these types of functions in case your application requires this kind of information at some time.

Activity One: Complete the Keystroke Command Summary on Student Worksheet #11a with the commands which can be used to modify the default spreadsheet. Also, use the manual and make a list of all the specialized formats your spreadsheet provides. Complete Student Worksheet #11b.

Activity Two: Create a budget worksheet using the Sample Budget provided. The operations which will need to be performed are:

(1) Widen the item column to 20 characters.
(2) Label the columns.
(3) Change the format to the dollars-and-cents format, which will create 2 decimal places and add an extra 0 to values with just one decimal place.
(4) Fix labels.
(5) Enter the formula to total expenses. This will be the sum of the items within the two categories of "Fixed" and "Flexible". Try using the command to replicate the formula for each column.
(6) Enter the formula that will tell you what your savings will be: income minus total expenses. Don't forget to replicate!
(7) Enter the data.
(8) Try changing your income or expenses to see the automatic recalculation.
(9) Save the spreadsheet to a data disk, naming the file BUDGET.
(10) Print the spreadsheet and turn it in to the teacher to sign off.

SAMPLE BUDGET

		MONTH	
ITEM	Jan.	Feb.	Mar.
INCOME	220.00	220.00	220.00
EXPENSES--FIXED			
Lunches	40.00	40.00	40.00
Transportation	40.00	40.00	40.00
Books	10.00	10.00	10.00
Club Dues	5.00	5.00	5.00
Other	20.00	20.00	20.00

EXPENSES--FLEXIBLE			
Hobbies	8.00	10.00	8.00
Snacks	5.00	5.00	5.00
Movies	20.00	10.00	8.00
Clothes	20.00	20.00	30.00
Gifts	0.00	10.00	15.00
Sports	12.00	16.00	10.00
Other	10.00	5.00	5.00
TOTAL EXPENSES			
SAVINGS			

Activity Three: Create a grade book using the Sample Grade Sheet provided. The operations which will need to be performed are:

(1) Widen the student name column to 20 characters.
(2) Label the columns.
(3) Fix labels.
(4) Enter the formula to total and average the student grades. This will be the sum of the five test grades divided by the number of tests given. If your spreadsheet has an average function this is a good place to practice it.
(5) Lock formulas.
(6) Enter the data.
(7) Save this grade sheet to a data disk, labeling it GRADEBK.
(8) Print the grade sheet and turn in to the teacher.

SAMPLE GRADE SHEET

SUBJECT American History SIX WEEKS BEGINNING 1/16
SIX WEEKS ENDING 3/5

CLASS _____
TIME _____

NAME	1st WEEK		2nd WEEK		3rd WEEK		4th WEEK		5th WEEK	
	M T W T F	Quiz 1	M T W T F	Quiz 2	Test 2	M T W T F	Quiz 3	Test 3	M T W T F	M T W T F
Gerald Astar 1		75		50	80		50	70		
Elizabeth Clark 2		60		70	65		50	72		
Earl Evans 3		80		77	84		43	78		
Henry Hansen 4		90		86	91		96	100		
Peggy Jones 5		57		83	77		54	72		
Susan Linder 6		36		54	67		51	75		
Lynn Mock 7		23		71	68		42	59		
Sam Paisey 8		84			90		65	87		
Sara Sanchez 9		46			65		64	70		
Jason Sidle 10		90			87		50	83		
Troy Tuttle 11		38		47	57		40	70		
George Yazzie 12		60		87	78		36	63		
13										
14										

CORE COMPUTER CURRICULUM

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APPENDICES

APPENDIX A

Student Glossary

Name _____

STUDENT GLOSSARY

Define each of the terms as you are asked to in the modules.

APPLICATION SOFTWARE

BINARY SYSTEM

BITS

BYTE

BOOT

CATALOG

CHIPS

COMPUTER OPERATOR

COMPUTER TECHNICIAN

CPU

CRT

CURSOR

DAISY WHEEL PRINTER

DATABASE

DATA ENTRY/KEYPUNCH OPERATOR

DEDICATED WORDPROCESSOR

DELETE

DIRECT CONNECT

DISK

DISK DRIVE

DOT MATRIX PRINTER

FIELD

FIELD NAME

FIELD SIZE

FIELD TYPE

FIRMWARE

FORMAT

HARDWARE

HARDCOPY

INITIALIZE

INPUT

INTERFACE

INTEGRATED CIRCUIT

I/O

MACHINE LANGUAGE

MAINFRAME

MICROCOMPUTER

MINICOMPUTER

MODEM

OPERATING SYSTEM

PERIPHERALS

PORT

PRINT

PROGRAM

PROGRAMMER

PROGRAMMING LANGUAGE

RAM

RECORD

RELATIONAL DATABASE

RIGHT JUSTIFY

ROM

SAVE

SEARCH AND REPLACE

SERIAL PORTS

SOFTWARE

SYSTEM SOFTWARE

SYSTEMS ANALYST

TERMINAL

TRACTOR FEED

TRANSISTORS

VACUUM TUBES

WRAP AROUND

WORDPROCESSING

APPENDIX B

Student Worksheets

Name _____

Period _____

MICROMANIAC INTRODUCES YOU TO THE COMPUTER

Answer Sheet

1.	A	B	C	D	18.	A	B	C	D	35.	A	B	C	D
2.	A	B	C	D	19.	A	B	C	D	36.	A	B	C	D
3.	A	B	C	D	20.	A	B	C	D	37.	A	B	C	D
4.	A	B	C	D	21.	A	B	C	D	38.	A	B	C	D
5.	A	B	C	D	22.	A	B	C	D	39.	A	B	C	D
6.	A	B	C	D	23.	A	B	C	D	40.	A	B	C	D
7.	A	B	C	D	24.	A	B	C	D	41.	A	B	C	D
8.	A	B	C	D	25.	A	B	C	D	42.	A	B	C	D
9.	A	B	C	D	26.	A	B	C	D	43.	A	B	C	D
10.	A	B	C	D	27.	A	B	C	D	44.	A	B	C	D
11.	A	B	C	D	28.	A	B	C	D	45.	A	B	C	D
12.	A	B	C	D	29.	A	B	C	D	46.	A	B	C	D
13.	A	B	C	D	30.	A	B	C	D	47.	A	B	C	D
14.	A	B	C	D	31.	A	B	C	D	48.	A	B	C	D
15.	A	B	C	D	32.	A	B	C	D	49.	A	B	C	D
16.	A	B	C	D	33.	A	B	C	D	50.	A	B	C	D
17.	A	B	C	D	34.	A	B	C	D					

STUDENT WORKSHEET #1

Name _____

HANDLING HARDWARE

Place a check by each item as you locate it or perform the task. When you feel confident with all items on the list have your teacher check off and initial the list.

	STUDENT	TEACHER
Turn the machine on and off	_____	_____
Demonstrate proper loading of disk into a drive	_____	_____
Demonstrate a cold boot	_____	_____
Demonstrate a warm boot	_____	_____
Identify the following parts of the computer's hardware:		
CRT	_____	_____
keyboard	_____	_____
disk drive or cassette drive	_____	_____
I/O ports	_____	_____
Reset button	_____	_____
Identify and explain the uses of the following special purpose keys:		
Control key	_____	_____
Return or enter key	_____	_____
Space bar	_____	_____
Shift keys	_____	_____
Caps lock	_____	_____
Arrow or cursor control keys	_____	_____
Escape key	_____	_____
Delete key	_____	_____
Dedicated function keys (if any)	_____	_____
Number pad (if supplied)	_____	_____

The student has demonstrated the above items with 100% accuracy.

_____ _____

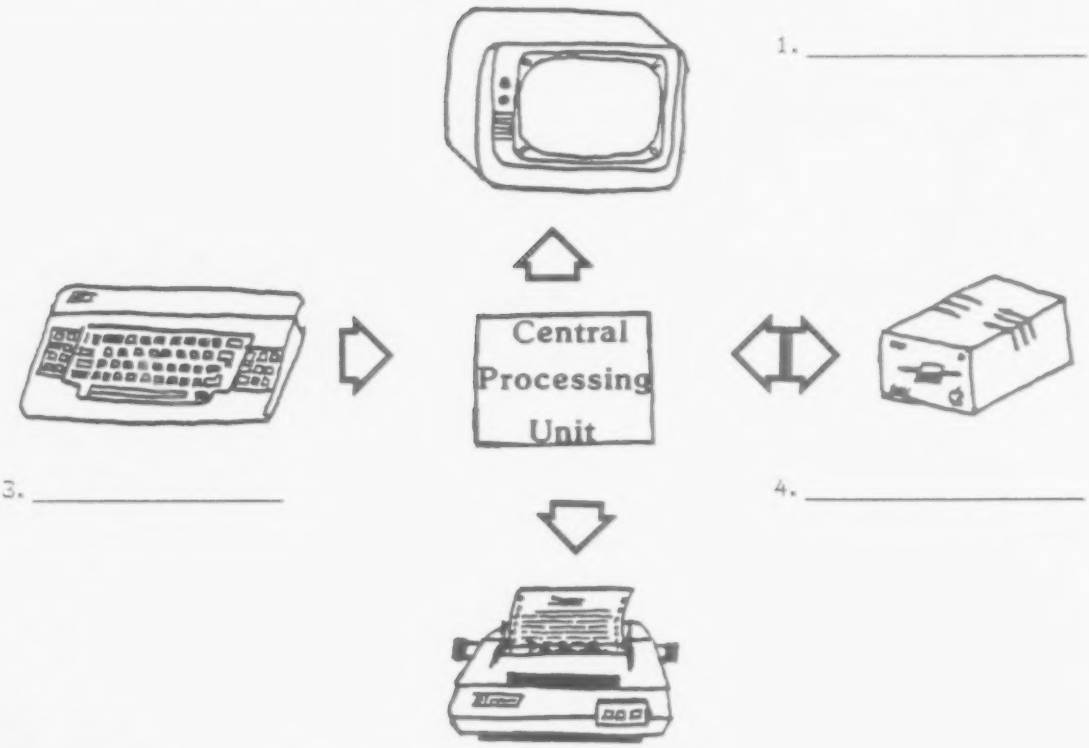
Date Teacher

STUDENT WORKSHEET #2

Name _____

HOW THE COMPUTER WORKS

Label each of the items in the blanks provided.



1. _____

3. _____

4. _____

5. _____

Use the numbers from the above labels to answer the following questions. Place the correct answer in the blank to the left of the question. A question may have more than one number for an answer.

_____ Which item(s) is/are input devices?
_____ Which item(s) is/are output devices?
_____ Where can storage take place?
_____ Where would RAM be?
_____ Where would ROM be?

The student has demonstrated the above items with 100% accuracy.

_____ _____
Date Teacher

STUDENT WORKSHEET #3

Name _____

THE MANUAL

Look up in the manual the abbreviations for the following terms:

(1) Return (or enter) _____

(2) Control _____

(3) Escape _____

(4) Delete _____

(5) Reboot _____

Using your manual as a reference, list the error message the computer will give for each of the following problems:

(1) The disk is full _____

(2) The drive has not been booted _____

(3) The disk is damaged _____

(4) The disk is write-protected _____

(5) The disk is empty _____

(6) The file requested is not on the disk _____

(7) The file requested has not been named properly _____

(8) The drive specified does not have a disk in it _____

(9) The disk has not been formatted _____

(10) The wrong drive has been requested _____

Have your teacher check off the following procedures as you demonstrate them:

(1) Rename a file _____
(2) Copy or backup a disk _____

STUDENT WORKSHEET #4

Name _____

OPERATING SYSTEM

Complete the following worksheet by answering each question or demonstrating the skill. When you feel confident with all items on the list have your teacher check off and initial the worksheet.

Name the operating system of the computer you are using. _____

_____

_____

Name two other common operating systems. _____

_____

Explain what an operating system does and its relationship to hardware.

_____

_____

_____

_____

_____

Describe or demonstrate the following procedures:

change drives	_____	_____
calling up catalog or directory	_____	_____
creating and saving a new file to disk	_____	_____
erase or delete a file	_____	_____

The student has described or demonstrated the above items with 100% accuracy.

_____ _____

Date Teacher

STUDENT WORKSHEET #5a

Name _____

People, Places, Things
In The World of Computers

As you read the assignment given by your teacher, identify the approximate time and significance of each of the following in the contribution to the evolution of computers:

ABACUS:

HOLLERINTH CARD:

JACQUARD:

LOVELACE:

NAPIER RODS:

PASCALINE MACHINE:

UNIVAC:

STUDENT WORKSHEET #5b

Name _____

HISTORY

Complete the time line showing the evolution of devices human beings have used to aid in their thought by inserting significant events in chronological order.

The student completed the above time line on the history of computers with a minimum of 80% accuracy.

_____ _____
Date Teacher

STUDENT WORKSHEET #6

Name _____

PERIPHERALS

Complete the following items as indicated.

Is the printer for the computer you are using a dot matrix or a letter quality? _____

What are three common paperfeed problems?

1. _____
2. _____
3. _____

The Jones family has a computer and now wants to purchase a printer. What cautions, advice or words of wisdom would you give them?

_____
_____
_____
_____

What is the purpose of a modem? _____
_____
_____

Identify five components necessary for data communication.

1. _____
2. _____
3. _____
4. _____
5. _____

Cite an example of electronic mail you are apt to find in your community.

_____
_____
_____

The student has completed the above items with 100% accuracy.

_____ _____
Date Teacher

STUDENT WORKSHEET #7

Name _____

IMPACT

Interview an individual who is currently employed in a job that uses computers. Take notes as you ask the following questions and write a report as directed by your teacher: (Make sure to list the name of the person, the position, and the work place)

1. What type of employment are you in? _____
   _____
2. How many years have you been employed in this field? _____
3. What technological changes have you seen take place? _____
   _____
   _____
   _____
4. How did you feel when these changes first began? _____
   _____
   _____
   _____
5. How do you feel about the changes now? _____
   _____
   _____
   _____
   _____
6. How have the changes influenced your work? _____
   _____
   _____
   _____
   _____
7. What changes do you predict for the future? _____
   _____
   _____
   _____
   _____
8. What advice would you give me to prepare for entering the workforce. What skills would I need for dealing with technological change? _____
   _____
   _____
   _____

STUDENT WORKSHEET #9

Name _____

WORDPROCESSING

Keystroke Command Summary

On the left side of the page is a summary of the basic procedures which all wordprocessors use. On the right side of the page in the blanks provided, write down the keystroke command which your wordprocessor uses.

CURSOR:

(1) One character forward _____

(2) One character back _____

(3) One word forward _____

(4) One word back _____

(5) Beginning of the line _____

(6) End of the line _____

(6) Beginning of the block (paragraph) _____

(7) End of the block (paragraph) _____

(8) Previous line _____

(9) Next line _____

(10) Beginning of file _____

(11) End of file _____

(12) Tab _____

(13) Start new paragraph _____

(14) Scroll up _____

(15) Scroll down _____

(16) Search and replace _____

DELETE

(1) Delete one character _____

(2) Delete word to the right of cursor _____

(3) Delete word to the left of cursor _____

(4) Delete line _____

(5) Delete block (paragraph) _____

(6) Delete page _____

SAVING

(1) Save a file _____

(2) Rename and save a file _____

(3) Quit editing without saving file _____

FORMATTING

(1) Set/erase tab _____

(2) Insert on/off _____

(3) Mark a block (paragraph) _____

(4) Copy a block (paragraph) _____

(5) Move a block (paragraph) _____

(6) Right justify _____

(7) Force a page break (new page) _____

(8) Change line spacing _____

(9) Reform paragraph _____

(10) Center text _____

STUDENT WORKSHEET #10

Name _____

DATABASE

Keystroke Command Summary

On the left side of the page is a list of basic spreadsheet procedures. In the blank space provided across from each, give the keystroke command your spreadsheet uses to execute each function.

(1) create a new file _____

(2) edit (or update) a file _____

(3) print a file _____

(4) assign field name _____

(5) define field size _____

(6) define field type _____

(7) sort a file _____

(8) erase a file _____

(9) display a file _____

(10) character type (field) _____

(11) numerical type (field) _____

(12) logical type (field) _____

(13) save a file _____

STUDENT WORKSHEET #11a

Name _____

SPREADSHEET

Keystroke Command Summary

On the left side of the page is a list of basic spreadsheet procedures. In the blank space provided across from each, give the keystroke command your spreadsheet uses to execute each function.

(1) One character forward _____

(2) One character back _____

(3) One column forward _____

(4) One column back _____

(5) One row up _____

(6) One row down _____

(7) Beginning of row _____

(8) End of row _____

(9) Top of column _____

(10) Open (create) column _____

(11) Open (create) row _____

(12) Change column width _____

(13) Delete entry _____

(14) Enter label _____

(15) Enter formula _____

(16) Save file _____

(17) Rename file _____

(18) Cancel command _____

(19) Goto _____

(20) Scroll up/down _____

(21) Fix label _____

(22) Lock formula _____

(23) Scroll to right _____

(24) Scroll to left _____

(25) Edit entry _____

(26) Print spreadsheet _____

(27) Plus _____

(28) Minus _____

(29) Multiply _____

(30) Divide _____

(31) Raise to power of _____

(32) Start label entry _____

(33) Start formula entry _____

(34) Start numerical entry _____

(35) Replicate formula _____

STUDENT WORKSHEET #11b

Name _____

DATABASE

1. Using the database program, create a relational database with the following information:

Mr. Mallard Duckling, Jr.
The Pool Shop
P.O. Box 865
Swimtown, OH 89043
(670)897-3456

Mrs. Donald McRonald
Hamburger Heaven
27 North Love Lane
Pickle, AZ 96784
(605)890-5237

Mrs. Brush
The Shoeshine Shop
607 N. 4th Street
Shoehorn, FL 90675
(189)358-2587

Mr. Ralph Pinecone
Pine Tree Inn
P.O. Box 4567345
Pinetop, OK 06843
(285)694-8237

Mr. James Sleeves
Long Arm Motel
922 Cuff Street
Longton, PN 89043
(189)857-3489

Mr. Ham Mer
U-Do-It Hardware
27 N. Nail Ave.
Ladder, AK 07842
(289)891-9674

Dr. Anne Bishop
The Checkerboard Mill
97 Checkmate Lane
King, NC 90567
(837)684-9253

Mr. G. O. Bowling
The Pin Shop
27 Rolling Ball Blvd.
Lane, WI 80543
(375)863-4755

Mr. & Mrs. Brighton Star
The Nighttime Shop
Second Star Road
Moonglow, AL 89805
(603)278-3894

Mrs. Rose Bud
Flowers For All
26 Gardenia St.
Marigold, SD 90567
(364)825-3859

Field name should include the listed 10 records with name, address, zip code, phone number, and organization.

2. Access the database and edit five of the records changing the address and zip code.

3. Sort the entire database alphabetically by last name.

4. Print the database alphabetically by last name. Turn this in to your teacher.

APPENDIX C

Student Pre- and Posttest

NAME _____

CORE COMPUTER CURRICULUM

PRETEST

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A. CRT
B. Terminal
C. Hardware
D. Software

_____ 2. The term that refers to getting the computer ready to work is

A. Run
B. Boot
C. Go For It
D. Start

_____ 3. "That thing that looks like a t.v." with a computer is called the

A. CRT
B. CPU
C. RAM
D. ROM

_____ 4. Which of the following indicates the next place where type will appear on the screen?

A. cursor
B. "X"
C. arrow
D. disk

_____ 5. Disks are

A. more sensitive than cassette tapes
B. fragile
C. software
D. all of the above

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B. tapes
C. punched cards
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b. RAM
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_____ 9. A wordprocessing package is an example of

A. systems software
B. applications software
C. both A and B
D. none of the above

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A. must be saved to be kept permanently
B. will be lost when the power is turned off
C. is temporary memory
D. none of the above

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A. ROM
B. operating system
C. command mode
D. disk

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A. to put the first letter of your name on the disk
B. to get a disk ready to receive data
C. to format a disk
D. both B and C

_____ 13. The directory of an operating system

A. allows you to view all the file names of a disk
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A. "letter quality"
B. more expensive type of printer
C. impact printer
D. none of the above

_____ 27. Which type of paper feed on a printer works like that of a typewriter

A. friction roller
B. tractor feed
C. neither of the above
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A. touchtone
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B. data entry operator
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A. the need for new skills
B. new types of jobs
C. new problems
D. all of the above

_____ 37. The person who installs and repairs computers is a

A. programmer
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_____ 38. Scrolling refers to

A. moving the cursor through a document one line at a time
B. moving through a document one full screen at a time
C. moving the cursor from one paragraph to another
D. all of the above

_____ 39. The need for skilled wordprocessor operators

A. is decreasing
B. is far greater than the supply
C. is stable
D. none of the above

_____ 40. A dedicated wordprocessor

A. is designed only to process documents and information
B. works harder than a nondedicated wordprocessor
C. has a highly specialized keyboard
D. both A and C

_____ 41. A microcomputer with wordprocessing software

A. is not as fast nor efficient as a dedicated wordprocessor
B. lacks special function keys
C. is less expensive and more flexible than a dedicated wordprocessor
D. all of the above

_____ 42. The process of the computer automatically returning the cursor to the left side of the screen when the right end of the line is reached is

A. called "return"
B. called "insert"
C. called "wrap around"
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_____ 43. With wordprocessors, all occurrences of a wrong or misspelled word in a document can be most efficiently corrected by

A. finding each word, deleting it and entering the new word
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_____ 44. Electronic spreadsheets have gained acceptance rapidly because they

A. make it easy to perform calculations
B. can be used to make projections and predictions
C. both A and B
D. none of the above

_____ 45. The entry in electronic spreadsheet can be

A. a number
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D. all of the above

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A. to keep family budgets
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B. files
C. bytes
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CORE COMPUTER CURRICULUM

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APPENDIX D

Student Pre- and Posttest Key

CORE COMPUTER CURRICULUM

PRE- AND POSTTEST KEY

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D. all of the above

__C__ 6. Data stored here may be lost when the computer is shut off.

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Module Two

__A__ 7. The most common means of data storage for a microcomputer is

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__C__ 8. The device which controls the computer's processing of information is called

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Module Three

__B__ 11. The main program required to operate a computer is

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Module Six

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B. computer technicians
C. computer engineers
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Module Nine

__B__ 38. Scrolling refers to

A. moving the cursor through a document one line at a time
B. moving through a document one full screen at a time
C. moving the cursor from one paragraph to another
D. all of the above

__B__ 39. The need for skilled wordprocessor operators

A. is decreasing
B. is far greater than the supply
C. is stable
D. none of the above

__D__ 40. A dedicated wordprocessor

A. is designed only to process documents and information
B. works harder than an undedicated wordprocessor
C. has a highly specialized keyboard
D. both A and C

__D__ 41. A microcomputer with wordprocessing software

A. is not as fast nor efficient as a dedicated wordprocessor
B. lacks special function keys
C. is less expensive and more flexible than a dedicated wordprocessor
D. all of the above

__C__ 42. The process of the computer automatically returning the cursor to the left side of the screen when the right end of the line is reached is

A. called "return"
B. called "insert"
C. called "wrap around"
D. all of the above

__B__ 43. With wordprocessors, all occurrences of a wrong or misspelled word in a document can be most efficiently corrected by

A. finding each word, deleting it and entering the new word
B. using the search and replace mode
C. using the erase function
D. both A and C

Module Ten

__C__ 44. Electronic spreadsheets have gained acceptance rapidly because they

A. make it easy to perform calculations
B. can be used to make projections and predictions
C. both A and B
D. none of the above

__D__ 45. The entry in electronic spreadsheet can be

A. a number
B. a formula
C. a column heading
D. all of the above

__D__ 46. Electronic spreadsheets can be used

A. to keep family budgets
B. for recording grades
C. to control business inventories
D. all of the above

Module Eleven

__C__ 47. Databases are used

A. by computers
B. by almost everyone daily
C. both A and B
D. none of the above

__C__ 48. The feature that a database is organized around is

A. decided by the computer
B. called data
C. called its key or purpose
D. all of the above

__A__ 49. A relational database

A. has data entered in the proper place within a matrix
B. is a file recording genealogical information
C. both A and B
D. none of the above

__B__ 50. A database is made up of

A. disks
B. files
C. bytes
D. bits

APPENDIX E

Crossword Puzzle and Key

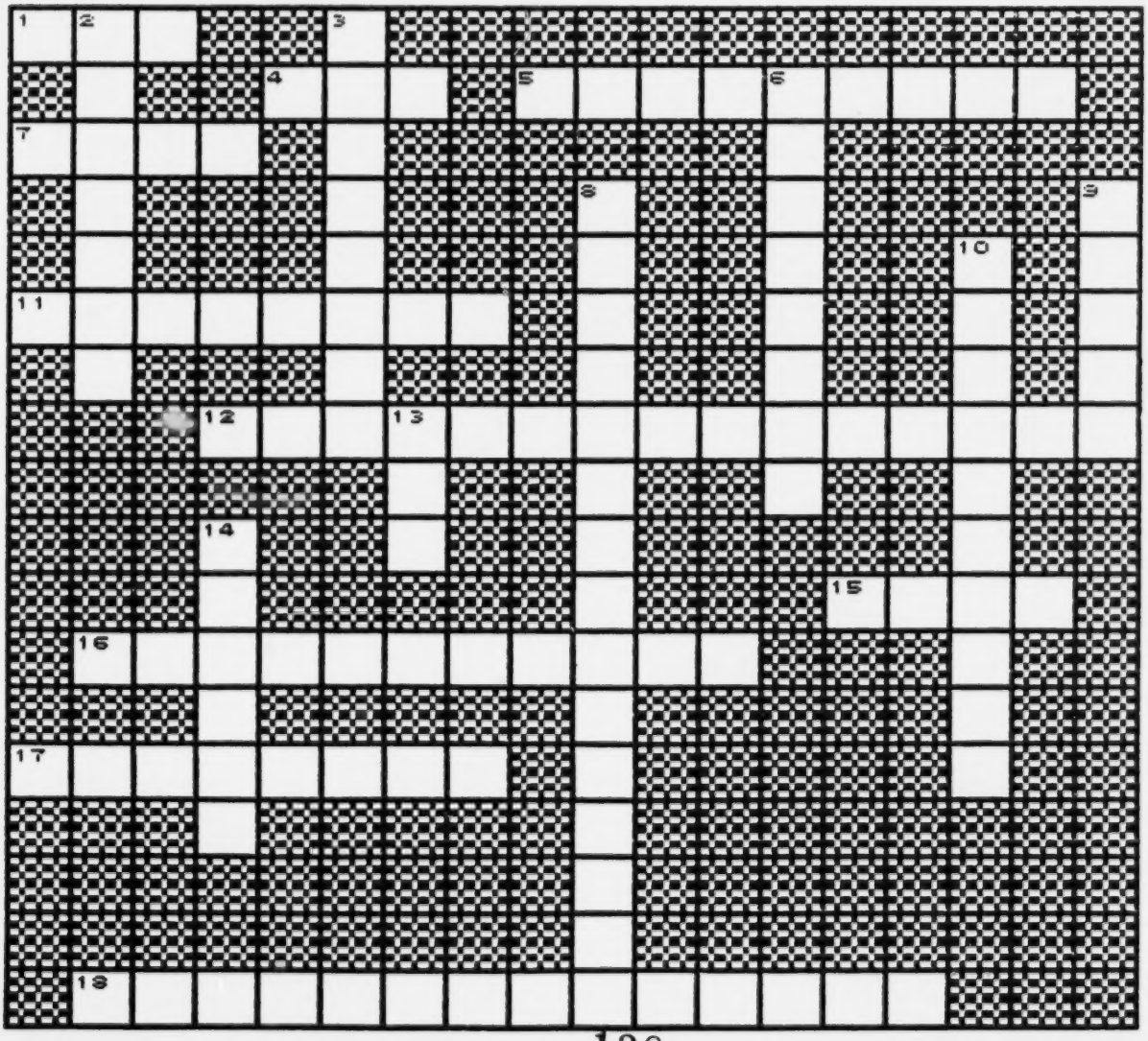
CLUES

Across

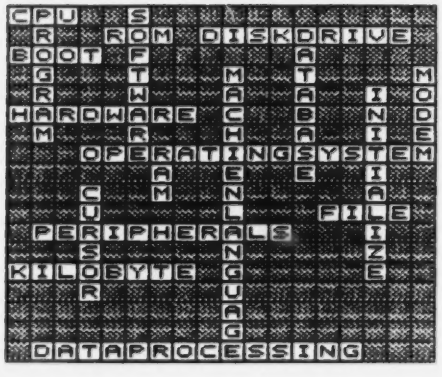
1. (Abb.) Central Processing Unit
4. (Abb.) Read Only Memory
5. Device used to store/retrieve information on a disk
7. To turn on, or to reinitialize the computer with a new program
11. Physical machinery of the computer
12. Main program required to run the operation of a computer
15. A logical set of information divided into records and then into fields
17. 1024 bytes
18. The manipulation of data by a computer (2 words)

Down

2. A set of instructions that the computer carries out in processing data
3. Computer programs that tell the computer how to perform certain functions
6. A systematic way of storing files for future processing
8. Language directly understood and executed by computers (2 words)
9. Device used to connect computers to telephone lines
10. Prepare a disk for use
13. (Abb.) Random Access Memory
14. A small space marker that indicates the position at which the next typed character will appear



ANSWER TO CROSSWORD PUZZLE:



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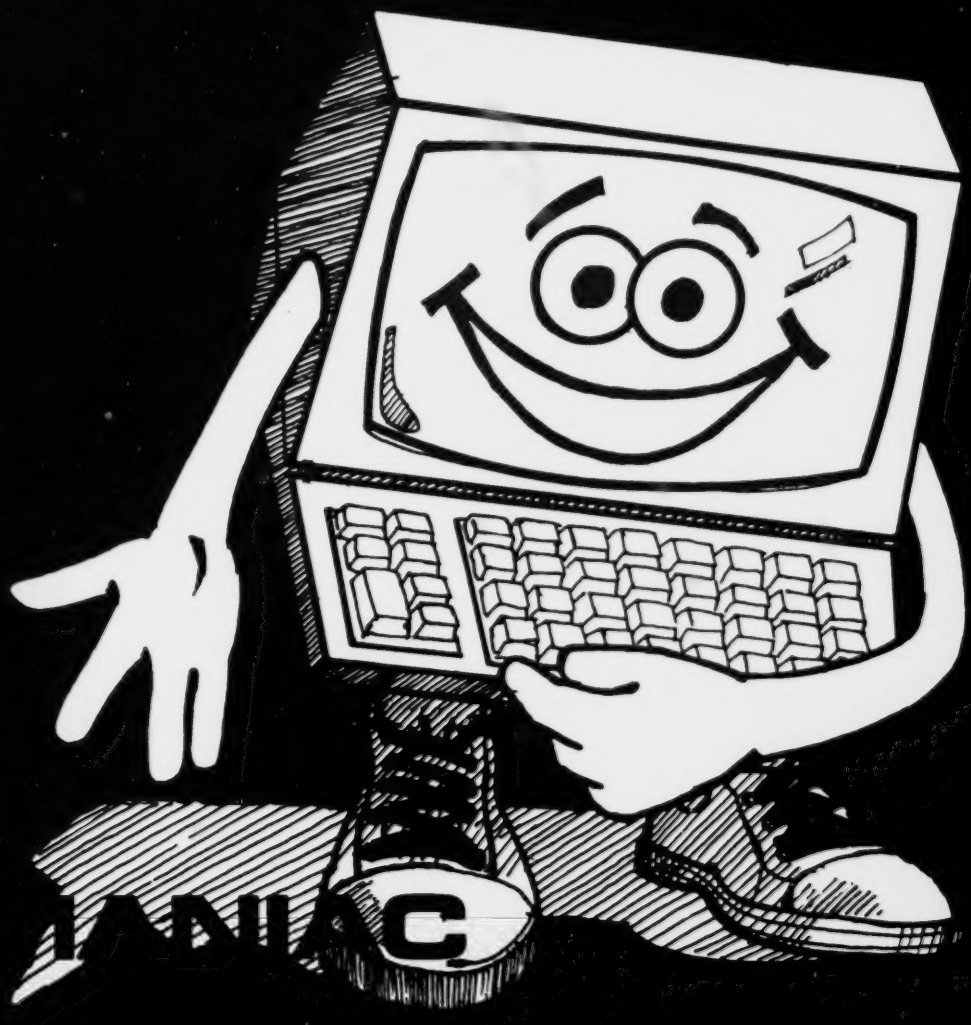

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MICROMANIAC© INTRODUCES YOU TO THE COMPUTER

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I'LL BE AROUND THROUGHOUT THIS COURSE OF STUDY. YOU'LL SEE ME USED TO INTRODUCE OR EXPLAIN A VARIETY OF IDEAS. I THINK YOU'LL FIND THIS BOOK HELPFUL IN UNDERSTANDING MICROCOMPUTERS AND HOW THEY ARE USED TODAY. DON'T WORRY THOUGH, THIS COURSE WON'T TURN YOU INTO A MICROMANIAC©!

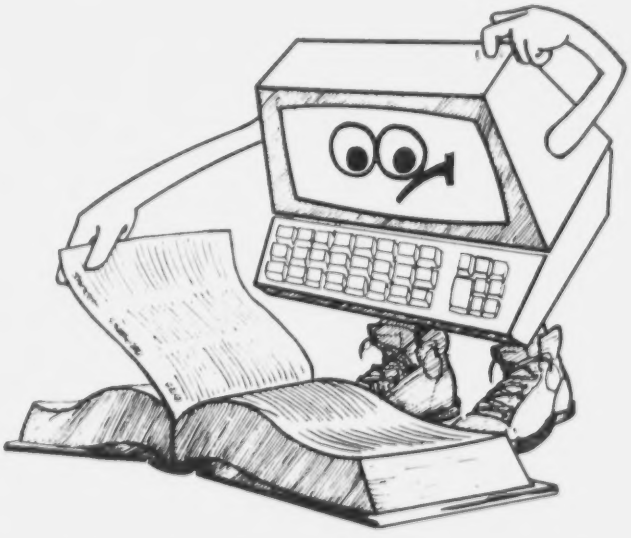
INTRODUCTION

"What types of computer usages are you familiar with?", is a question that more and more job applicants are being asked. It is projected that by the year 1990 eighty percent of all occupations will be impacted or affected by the use of computers. If you have some knowledge of computers and their applications when applying for a job it will give you an edge over other applicants. In all probability you will be expected to use a computer in one way or another on almost any job.

MICROMANIAC© INTRODUCES YOU TO THE COMPUTER has been developed by the Arizona Center for Vocational Education in cooperation with the Arizona Department of Education. It is designed to introduce you to a "common core" of computer-related knowledge that might be used in a variety of occupations. The course focuses on the use of microcomputers and how they might be used on the job.

Computers have created their own jargon.

Remember when ... a bit was something that fit into a horse's mouth?
... a chip was a crisply fried potato?
... hardware meant nails, bolts and screws?
... boot was a noun worn on the foot?
... software was worn to keep warm in the winter?
... a catalog was for mail order merchandise?
... initializing meant signing the first letters of your name?



B.C., before the computer revolution, only scientists and technologists were interested in the vocabulary of computers. Today however, since the explosive growth of the computer's use in business and industry, it has become necessary for many people to learn this language. Just as when you first learned to talk it was easiest to learn a word when you wanted to use, it you will find it easiest to pick up computer terminology as you have a use for a particular term. With this thought in mind MICROMANIAC© INTRODUCES YOU TO THE COMPUTER has included "terms" with each module or chapter. These terms should be defined in your student glossary. Definitions may be found in the glossary of a computer manual, the reference books in the classroom or from your own knowledge.

Each module includes learning activities that your classroom teacher may assign or you may be expected to work independently. The activities have been varied and are designed to get you involved in the "world of computers". If you have a special interest in a particular area or think of another activity related to the module you are studying, you might suggest an assignment to your teacher. As you complete this course you will become increasingly aware of computer usage and the vast amount of computer information that is available. Investigate areas that are of interest to you. You might be surprised at the career your interest will lead to.

MODULE ONE

HANDLING HARDWARE

COMPETENCY:

Demonstrate the use and care of computer hardware.

OBJECTIVE:

Given a checklist demonstrate the use and care of computer hardware with 100% accuracy.

ACTIVITIES:

Read assignments.
Define terms.
Identify function keys.
Perform operating procedures.

MODULE ONE

HANDLING HARDWARE

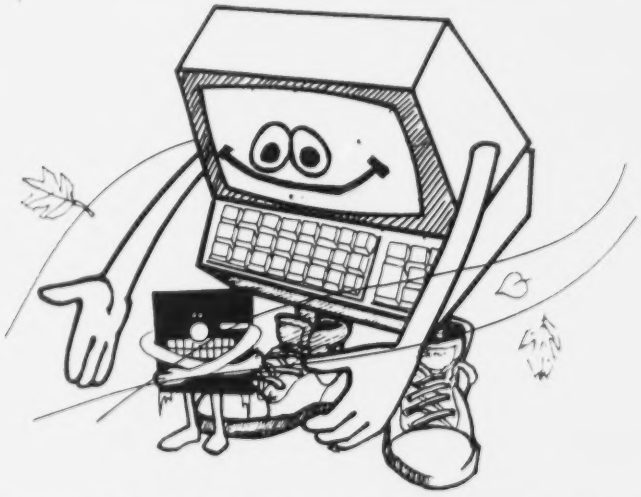
In this module you will be introduced to the following terms:

Boot	Disk	RAM
CRT	Hardware	Software
Cursor		

CARE OF HARDWARE

TREAT THE COMPUTER AS YOU WOULD A GOOD STEREO

A computer is more sensitive and often more expensive than a good stereo. It is wise to treat them similarly. Never drop, bump, or bang a computer. Protect it from power surges. Do not eat, drink or smoke around one. Anything spilled or dropped into the keyboard or drives can cause extensive damage. Computers are fragile devices. They do not function properly if too hot, cold, or dirty. If a computer is taken care of, it will work well for a long time.



CARE OF SOFTWARE

Disks should never be exposed to extreme heat or cold, direct sunlight, or any kind of magnetic or electronic radiation. To do so may result in erasing the stored information. Also, never scratch, bend, or in anyway damage one. Always handle them gently. Never force them into the drive. Never touch the shiny parts with anything. Disks are far more sensitive than records or cassette tapes. TAKE GOOD CARE OF THEM, or a lot of work may be lost.

MAKE MULTIPLE COPIES OF DISKS

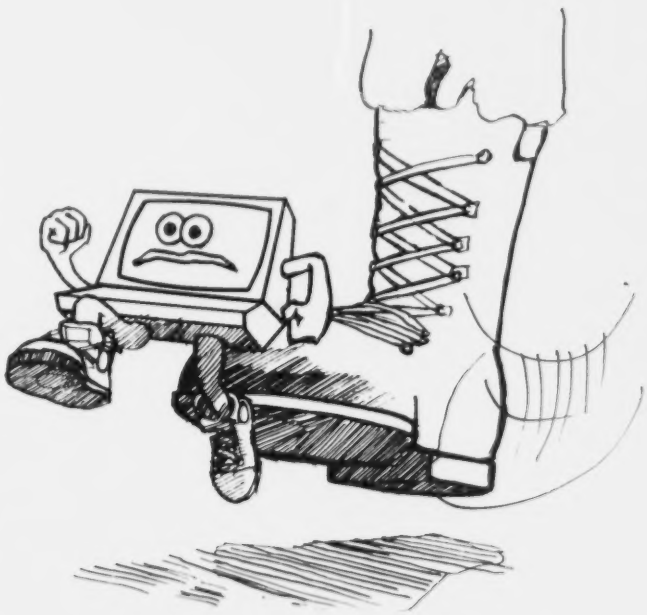
Another important principle in using both software and file disks is ALWAYS BACK UP WORK!!! It is a simple and painless process to make multiple copies of disks. Failure to do so could result in the loss of many hours of work.

IDENTIFYING HARDWARE PARTS

CALL PARTS OF THE COMPUTER BY THE PROPER NAMES

It is important to know the proper names of the various parts of the computer in order to talk about them effectively with other people. To refer to the CRT as "that thing that looks like a TV" may explain what you are talking about but it will also mark you as a person who knows very little about computers. If you are having problems identifying the parts of the computer, ask your instructor or a fellow student for help. The owner's manual will also be helpful in learning the parts of the computer.

BOOTING



Booting a computer simply means starting it. In the early days of computers an immense amount of work was required to get a computer turned on and started running. This process was likened to lifting one's self up by the bootstraps; hence the term "booting". There are two types of boots. The cold boot starts up a machine that has been turned off. The warm boot directs an already functioning machine to start using a new program.

COLD BOOT

A cold boot generally means to place a disk in the drive and turn the computer on. However, some machines will require turning on first, and then inserting the disk (TRS-80's and CP/M machines commonly do this). The most common procedure is to check that the machine is properly plugged in, place the disk in the dominant drive (usually labeled A, 1, or 0), and turn on the power switch. The drives will whirr, their red lights will come on, and then a prompt or "hello" will appear on the screen. Read the operating manual and find out exactly what is required to execute a cold boot on your computer.

WARM BOOT

A warm boot is performed when the machine is already being used and a change to another program is desired. If programs were changed without doing a warm boot, the computer would never know a new disk was in the drive. Place the new disk in the drive and reset the machine. There are a variety of ways to do this. Often there is a reset button. Many times Control C (^C) will cause the machine to warm boot. (The Apple IIe requires pressing the reset button while holding down the control key and the open apple key.)

KEYBOARD

SIMILAR TO A TYPEWRITER

Looking at the computer keyboard, you will notice that it resembles a typewriter. Many of the keys on the computer function as on a typewriter. If you press the letter "j", a j appears on the screen. This holds true for the number keys also. The shift key also functions like a typewriter's shift key. Holding the shift key down turns the "j" into a "J" on the screen. The space bar works similarly to the one on a typewriter. Push it down and it creates a space.

The caps lock key differs a little from the one on the typewriter. Once you push it down it stays down until you push it again to turn it off. Putting the caps lock on does not change what the number keys print. If you put the caps lock on and type the "7" key a "7" is printed on the screen. To print the uppercase symbol on the "7" key, hold the shift key down. Many computers have a small light on the caps lock key to let you know if it is on or off.

RAM

It is important to understand that all of the alphanumeric keys (numbers and letters) send information only to the RAM (random access memory) banks in the computer as they are typed. If the computer were to be turned off everything on the screen would be lost unless the information had been saved to a tape or diskette. This "save" operation is discussed later.

In order to actually communicate with the computer, to make it do things, certain keys have been added which are called function keys. The two most important of these keys are the RETURN (or enter) and the CONTROL (or ctrl). The return key is somewhat like the carriage return on the typewriter. It returns the cursor to the beginning of a new line. Depending on the software being used it may send the line you have just typed on the screen to the RAM to be temporarily stored. In computer manuals the symbol for the return key is generally (ret), (enter), or (CR).

The control key is used when you want the computer to do something. Pushing it by itself does nothing. Try it. Push it down and let it up. See, nothing happened. The control key only works when it is pushed simultaneously with another key (usually one of the letter keys). This combination is called a "control sequence".

CONTROL SEQUENCES VARY

Control sequences (or command sequences) vary from computer to computer. Even within the same computer, control sequences vary from one type of software to another. Command sequences have to be relearned as you move from computer to computer and from one type of software to another. Fortunately, after one set of commands has been learned, it is generally easy to learn a new one.

Control characters can move the cursor, scroll text on the screen, start an operation, stop an operation, cause the printer to print, move from one menu to another, and a whole host of more complex functions. In computer manuals the notation most often used to indicate a control character is the "^" symbol or "CTR". For example, many computers use the sequence Control C to cause a "warm boot." This would be written as "^C" or "CTR-C".

ESCAPE!

Another key which works much like the control key is the escape key (or ESC). This key will also modify the keyboard's actions. When pressed, followed by another key, the escape will cause a variety of responses. While escape is not used as often as control, it is important to know. Again, like the control key, the specific result of pushing escape varies with the type of computer and program. One common use of the escape key on many computers is to interrupt a program that is running.

COMMON KEYS

The final group of keys which are common to most computers are: the back-space, which, as its name suggests, causes the cursor to move back one space; the delete key (or DEL) which erases one space to the left; and the arrow or cursor keys which move the cursor horizontally and vertically on the screen.

"EXTRAS"

In addition some computers have a group of keys called dedicated function keys. These are usually grouped together and labeled F-1 through F-10, or they may be named as to their particular purpose. Often a number pad is also found on a keyboard. This is a group of keys numbered 0 through 9 with an enter key to the right of the keyboard. The number pad is more efficient than the numbers found at the top of the keyboard for entering extensive numerical data.

THE PROMPT OR CURSOR

TIME TO TELL THE COMPUTER WHAT TO DO

When beginning to work with the computer you will notice that with each program or system there will be a prompt waiting for your response. Some of the common prompt symbols are the bracket (]), the question mark (?), and the chevron (>). The prompt requires a response before the computer can continue to operate. What the prompt actually means is that the computer is waiting for your instructions.

Similar to the prompt is a symbol called the cursor. Common cursor symbols are a flashing rectangle or line. Cursors only exist inside of functioning programs like a wordprocessor or a spreadsheet. The cursor shows the next place where type will appear on the screen. Like the prompt, the cursor is the computer's way of indicating that it is waiting for input.

Don't start typing until the prompt or cursor is visible. The computer often takes time to find the information it needs, particularly if it must be read from a disk. NEVER hit the return or press any key before the cursor or the prompt appears. Doing so could abort the program being executed.

Activity One - Work on the student glossary by defining the terms listed at the beginning of Module One.

Activity Two - Complete student worksheet #1 as directed by your teacher.

MODULE TWO

HOW THE COMPUTER WORKS

COMPETENCY:

Describe the major components of a computer and their functions.

OBJECTIVE:

Given an illustration of the major computer components and accompanying statements, describe their functions with 100% accuracy.

ACTIVITIES:

Read assignment
Define terms

MODULE TWO

HOW THE COMPUTER WORKS

In this module you will be introduced to the following terms:

Applications Software	Machine Language
Binary System	Program
Bits	RAM
Byte	ROM
Chips	Software
CPU	Systems Software
Input	Terminal

INTRODUCTION

You may be wondering why it is necessary to know anything about the parts of a computer and how they work. Perhaps a comparison to a car will help explain. Suppose you had been given a car without any explanation of how it worked (and you had never driven nor been in one before). While it probably wouldn't be important for you to understand the firing order of the pistons or how the fuel-air mixture is set by the carburetor, you would undoubtedly like to know how to put the key in the ignition. It would also help to know that a car needs gas to run, which pedal is the brake, and how to steer.

The fellow in the cartoon obviously knows little about the parts of a computer and how it works. He has found what he thinks is a better use for the "machine".

This module gives information about computers so that you can make better use of them than the cartoon shows.

You will learn the three basic parts and processes of any computer system, how they relate to one another, and very simply how they work.

Activity One - Read additional assignments as given by your teacher.

Activity Two - Work on the student glossary by defining the terms listed at the beginning of Module Two.

Activity Three - Complete student worksheet #2 as directed by your teacher.

MODULE THREE

THE MANUAL

COMPETENCY:

Use a computer manual.

OBJECTIVE:

Given the computer and accompanying manual, complete the activity as directed by your teacher.

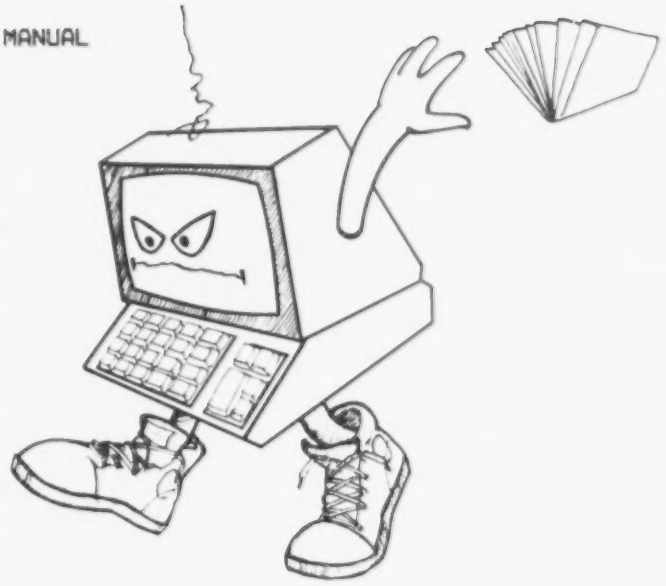
ACTIVITIES:

Read assignments
Complete activity as directed by your teacher.

MODULE THREE

THE MANUAL

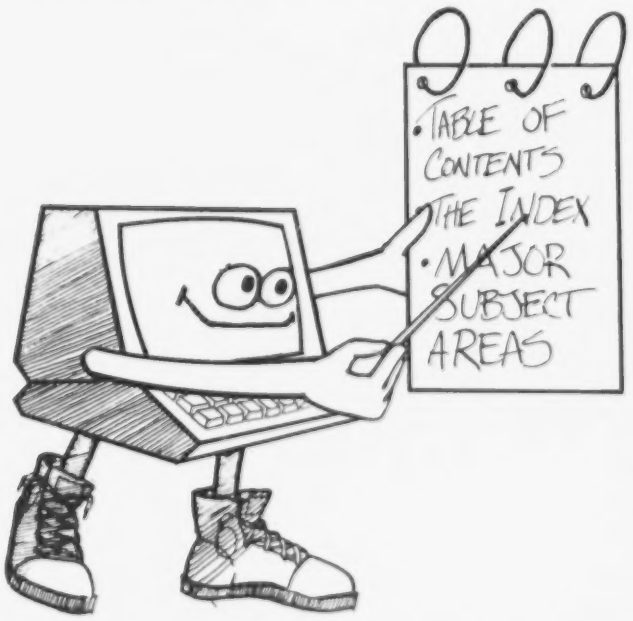
USE OF COMPUTER MANUAL



COMMIT YOURSELF TO LEARNING TO USE THE MANUAL

Learning to use a computer requires a commitment to learning its manual. It is impossible for anyone to teach you all the things there are to know about any computer. The possibilities for variation in needs and problems on a single computer and one piece of software are almost infinite. Multiply this by the number of computers and software available on the market today, and it becomes obvious that no one person can really know all that information. The mastery of computer skills is essentially self-taught. You have to be willing to learn on your own if you are to become truly proficient with the computer.

MASTERY OF COMPUTER SKILLS IS SELF TAUGHT



THREE SOURCES OF HELP

Three basic sources of information exist to aid in your learning and problem solving. The first and most important is the manual that came with

the computer or the software package. The second is the local expert, be it a friend with a similar device, a sales representative, or dealer, or maybe the resident whiz kid. The final source of appeal is the customer support department of the manufacturer or publisher. Do this as a last resort as it is usually more difficult to access.

A MANUAL IS LIKE A REFERENCE BOOK

Computer manuals are arranged much like any other reference book. The three most important parts are the table of contents, the index, and the major subject areas. Another feature unique to computer manuals is the I/O and error chart. Take some time to examine the manual. Find the index (or indexes--many have more than one). Find the I/O and error message charts. Look through the table of contents and find the major subject headings. Become familiar with the book as a whole. The two most vital parts of the manual as you try to learn and solve problems will be the index and the I/O message charts.

A word of caution on manuals. The quality of computer manuals varies greatly. Some manufacturers produce excellent documentation. Others are infamous for unreadable and poorly organized work. Two major complaints are voiced about poorly constructed manuals. First, they are written in a completely technical jargon. This is particularly true of standard manuals of some of the major operating systems. The second is poor indexing and organization. However, there is a positive note. Where adequate documentation is lacking, it can be supplemented by good books on the subject from local stores.

TAKE TIME TO LEARN THE SYMBOLS IN THE MANUAL

Every manual has its own set of symbols and standard notations. While some common symbols are widely used, most manuals have some differences. It is good to take the time to learn these symbols so that they will become second nature. Unfortunately, most manuals do not have a chart that defines all their symbols and notations. You will have to go through the book and pick them out.

LEARNING FROM THE MANUAL

GAIN SOPHISTICATED SKILLS

Once the basics of working with a computer have been mastered, there are a variety of useful and more sophisticated skills which can be learned. Learning from the manual is one of the easiest ways to gain these skills.

First determine the name of the procedure in question. This may be frustrating as different systems use different names for the same action. If it isn't found under the title expected, be creative and try a variety of names.

Look the procedure up in both the table of contents and the index. Make a note of the pages, and read them in the order they appear. Once you have a grasp of how it works, try running the procedure. If it doesn't work go back and read the manual again. Try again. Pay close attention to spelling, typing, and file names. Make sure the proper drive is designated. Probably 90% of all difficulties in learning a new procedure can be traced to some very simple omission or error.

THE COMPUTER DOES JUST WHAT YOU TELL IT TO

A computer is an absolutely literal device. It will do precisely as instructed. Almost all errors in the execution of a procedure are human ones. Those few problems that are a result of bad hardware or disks are generally easy to spot. Don't be discouraged if you can't solve a problem on the first try. Let it rest for awhile and think about it. Try again. If you are still stuck, then look for the local expert. Often it is helpful to have someone else's viewpoint.

DIFFICULT TO DAMAGE THE COMPUTER - EXPERIMENT

Try experimenting with the computer. Short of physically assaulting a computer it is quite difficult to damage. Without a spirit of adventure, it is very difficult to learn. Undoubtedly, you will make a few mistakes. Learn from these. Almost any mistake can be corrected though some will take more time than others.

Don't be overwhelmed by what seems to be an incredible amount of information to be learned. Start with the basic items. Learn only what is needed for the moment, adding information as the need arises. There is no way to learn everything at once, so don't try.

Activity One: Complete Student Worksheet #3 as directed by your teacher.

MODULE FOUR

THE OPERATING SYSTEM

COMPETENCY:

Demonstrate skill in using a computer's operating system.

OBJECTIVE:

Given a worksheet and checklist demonstrate use of the computer's operating system with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Student Worksheet #4

MODULE FOUR

THE OPERATING SYSTEM

In this module you will be introduced to the following terms:

Catalog	Firmware	Operating System
Delete	Initialize	Programming Language
Disk Drive	I/O	Save

DEFINING THE OPERATING SYSTEM

PROGRAMMED BY THE MANUFACTURER

A computer functions by integrating three different systems. The first is the computer itself which is called the hardware. The second is the operating system which is usually programmed into the computer by the manufacturer. This is often called firmware. The third is the program that is used for a specific application. This is generally called software. Hardware was studied in the last module, and software will be examined in the next one. This module will help you gain an understanding of the operating system that your computer uses.

THE OPERATING SYSTEM IS THE COMPUTER'S TRAFFIC DIRECTOR

All computers have an operating system, which is a set of instructions that defines procedures, sets priorities, and in general acts like the traffic director of the computer. It is interesting to note that although we use the name computer to describe these machines, they actually spend very little time computing. Computers spend almost all their time in operation "organizing." Thus a good definition for an operating system is: a set of programs that manages and directs the computer's basic functions.

All operating systems have certain things in common. They manage I/O (input/output) devices, organize and keep track of files. and have a working storage (RAM, memory that lasts only as long as the computer is turned on). An operating system is generally placed in the computer by the manufacturer in the ROM (read only memory). In other words, the computer is permanently programmed to respond in a particular way to a given set of instructions.

An operating system also makes it possible for a person to work in a high-level programming language (such as FORTRAN, BASIC, COBOL, PASCAL). It is by using these high-level languages that programmers develop applications programs. These programs, which are generally called software, are the real reason that computers exist. Based on the characteristics of the particular operating system, software is designed to solve specific problems. These software

programs may be accounting, wordprocessing, handling a vast amount of information (databases), or just how to play a good video game. Operating systems exist so that software can be used to solve problems.

VARIETY OF OPERATING SYSTEMS

There are numerous operating systems used in computers It sometimes seems that each manufacturer has developed a different system, and unfortunately these won't run software from another system nor are the commands and functions the same. Keep in mind that what works on one computer will not necessarily work on another. Don't let this discourage you. If you have learned one system, it is almost always easier to learn a second one. Also, different brands of computers may have the same operating system.

The most common operating system is called CP/M (command program/microcomputer). The second most common system is MS-DOS (or PC-DOS). MS-DOS (MicroSoft DOS) is actually a "clone" of CP/M and its commands are quite similar. These two systems account for about 80% of all business software.

Two other quite common operating systems are AppleDOS and TRS-DOS. DOS stands for Disk Operating System and is an abbreviation frequently used in computer messages when referring to a particular type of system or error.

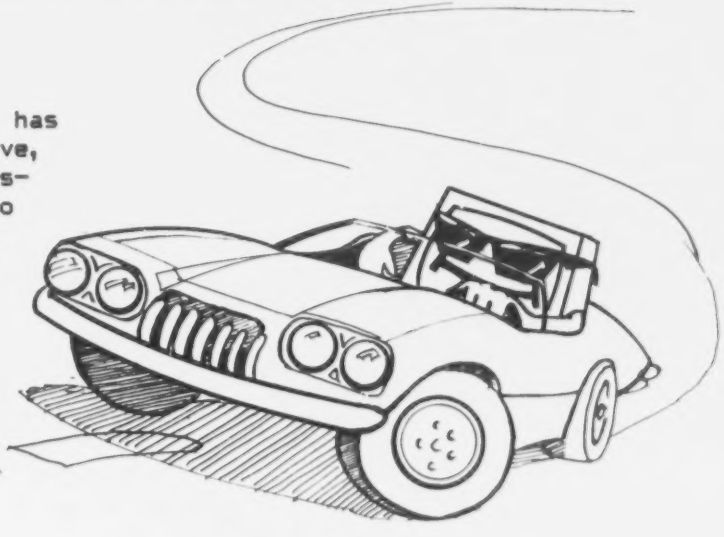
OPERATING SYSTEM SKILLS

FIVE BASICS TO OPERATE A COMPUTER

There are several tasks related to an operating system that are necessary to be able to use a computer effectively. The procedures for doing these will vary from system to system. However, the following five basic tasks remain the same.

Changing Drives

If the computer has only one disk drive, then it is obviously impossible to change drives. Most computers though, have two drives. These are generally labeled A and B, 1 and 2,



or 0 and 1. The A, 1, or 0 drive is always the dominant drive. This means it is the one in which you put the operating system disk or the software. The B or 2 drive is for the file or data disk. If drives are stacked, then the A drive is generally on top. When they are side by side, the left drive is generally A. Look at the computer and see how the drives are labeled.

Each operating system and software program has different conventions for changing drives. CP/M and MS-DOS for example, require that when presented with the prompt A), drives are changed by typing B: and then Return. AppleDOS uses the symbols D1 and D2.

The manner in which drives are changed depends not only on what operating system is being used but also what software is currently running in the machine. The conventions of each operating system and software must be learned so that information can be stored properly. If a drive is not properly specified and you try to record information on a disk that is full or protected, the information will be lost or perhaps the operating disk will be damaged.

Formatting/Initializing

PREPARING BLANK DISKS FOR USE

Formatting (or initializing as it is called on some systems) is the process by which a blank disk is prepared to function within the operating system of the computer. This procedure will vary from system to system. Generally, it is a program labeled as such on the master system/utility disk of the computer and has instructions included in the program on how to use it. The manual will also have instructions on how to format.

CAUTION: A disk must be formatted before it can be used. Any attempt to store information on an unprepared disk will result in an I/O error and the information will probably be lost. Always format disks immediately when you get them and label them as such.

Directory or Catalog

All operating systems have a vital function called the directory or catalog. This allows you to view the names of all of the files on a disk. You can imagine how important this function is. If you don't know how to get the directory, you won't know where information is. The most common command to get the directory is DIR, which is used by CP/M, MS-DOS, and TRS-DOS. The Apple uses the command CATALOG.

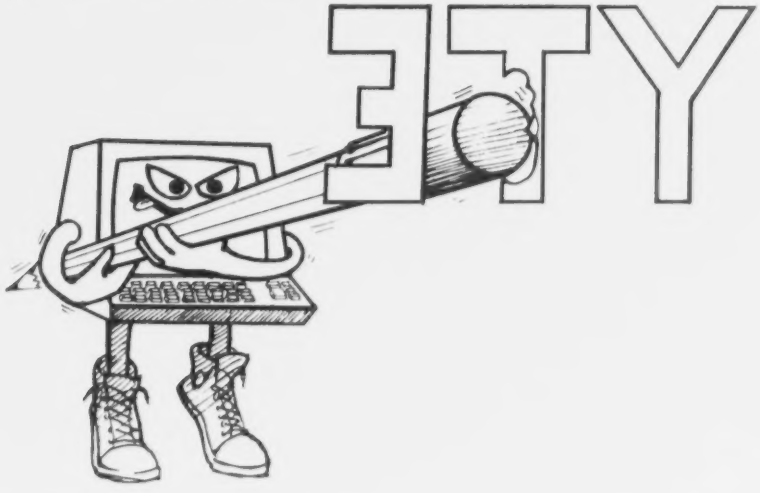
Create and Save

Creating is simply the process of entering something at the keyboard that has value to you as the user. This may be a program, a set of calculations, or a text document.

If work may be needed at a later date, it must be SAVED on a disk for future reference. This is usually done with the command SAVE followed by the drive number and the name of the file. This is by no means the only way a file can be written to a disk. Every system and piece of software will have a different technique. Examine the manual to determine precisely how the computer and software saves files.

Erase or Delete

Another important function in all operating systems is the ability to remove files. Called erase or delete (ERA or DEL), this procedure removes the file from the disk. Always think carefully before doing this. Once a file is erased it can never be recalled. The procedure for erasing a file is generally: at the prompt, type ERA (or DEL), specify the drive and the exact name of the file you wish to delete, and hit return. The drive will whirr and usually the computer will respond with a message on the screen saying that the file has been removed.



CONCLUSION

The few simple commands presented here are intended to give an introduction to the computer's operating system. It is capable of doing many sophisticated things. As you use the

computer and study the manual, it will become obvious that there are many useful applications. It is worth the effort required to learn to use these tools.

One final note: as microcomputer technology progresses, operating systems will become easier to use. One can now find computers that respond to a person touching a place on the screen-- causing it to perform a particular function that once would have required understanding the operating system. Other computers use a "mouse," a hand-held device that can be used to move the cursor around on the screen and to execute particular functions by just pushing a button. As computers become more sophisticated, many of the things a person needs to know to operate a computer today will be built in. Computers are exciting to work with because the field is constantly changing and there is always something new to learn.

Activity One: Define terms in glossary.

Activity Two: Referring to the computer manual, complete Student Worksheet #4 as directed by your teacher.

MODULE FIVE

HISTORY

COMPETENCY:

Outline the evolution of the computer.

OBJECTIVE:

Given a time line, outline the evolution of the computer with 80% accuracy.

ACTIVITIES:

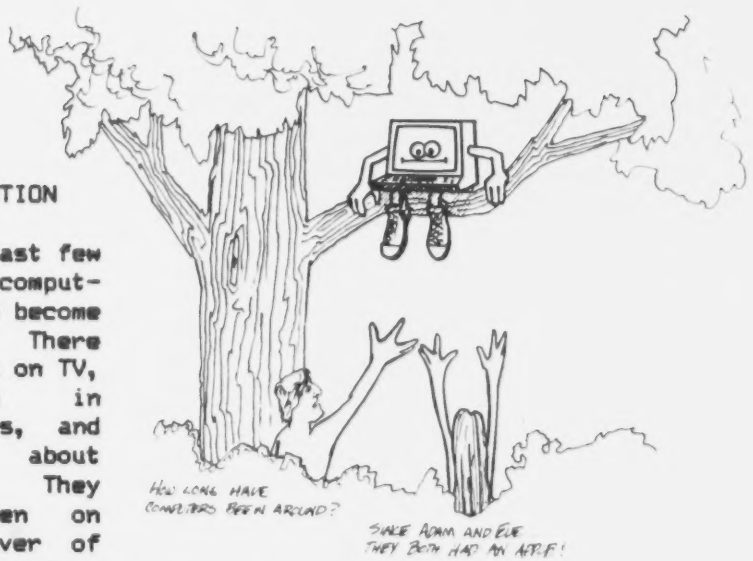
Read assignment
Define terms
Complete study guide

MODULE FIVE

HISTORY

In this module you will be introduced to the following terms:

Integrated Circuits	Minicomputer
Mainframe	Transistors
Microcomputer	Vacuum Tubes



INTRODUCTION

In the past few years, computers have become famous. There are ads on TV, articles in magazines, and books about them. They have been on the cover of TIME magazine. Schools everywhere have become interested in using them in education. With all the publicity computers have had, it is easy to assume they are a new phenomenon. Actually, this is far from true.

"COMPUTERS" HAVE BEEN AROUND FOR AGES

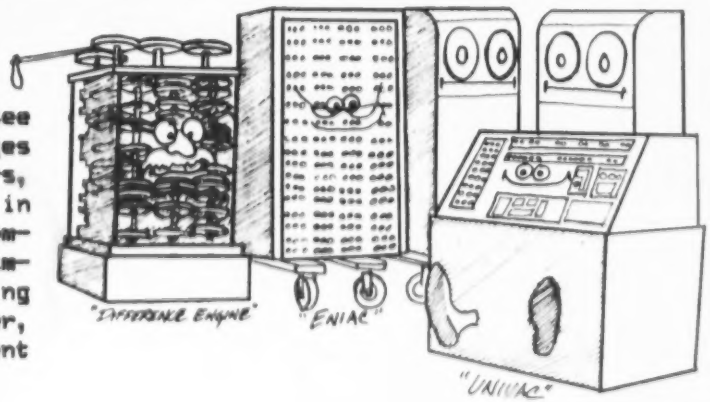
As long as human beings have thought and communicated, they have used devices to aid their ability to think and solve problems. You have undoubtedly used "computers" many times in your life. For example, have you ever made notes on note cards and stored them in a file box, counted on your fingers, kept a tally of items, put a note on a bulletin board, or even tied a string around your finger so you wouldn't forget something? While these actions may not seem as complicated as using a modern computer, the principles are the same. In each case you are using some device or "trick" to organize, process, or store information so that you can make a decision on some course of action. This is exactly what the computer does.

A COMPUTER IS A TOOL

A human being must first have a problem that needs solving and then develop a device or machine that can aid in solving the problem. A computer by itself can do nothing. It is a tool that humans can use to aid in their thought and communication. This is important to remember as many people think that computers are "smart". A computer is no smarter than a group of file cards in a file box. It is only when a person organizes the information and gives it meaning by putting it to use that it has any value.

As you read the chapters on the history of the computer, you will be surprised at the many devices humans have invented and used to help make their work and lives easier. From the fingers and marked stones, to the abacus and logarithms, on to the Pascaline, Napier's Rods, and Babbage's Difference Engine, people's efforts over the centuries have slowly developed today's computers.

Today we see rapid changes in computers, especially in the microcomputer. Consumers are looking for sleeker, more efficient models.



Activity One: Define terms in glossary.

Activity Two: Complete reading assignment and or worksheet 5a as directed by your teacher.

Activity Three: Complete Student Worksheet #5b.

Additional Activity: Research or write the next chapter in the history of computers. How might they be used in the future? Let your imagination soar!

MODULE SIX

PERIPHERALS

COMPETENCY:

Operate printer and modem.

OBJECTIVE:

Using a printer and modem, complete checklist with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Student Worksheet #6

MODULE SIX

PERIPHERALS

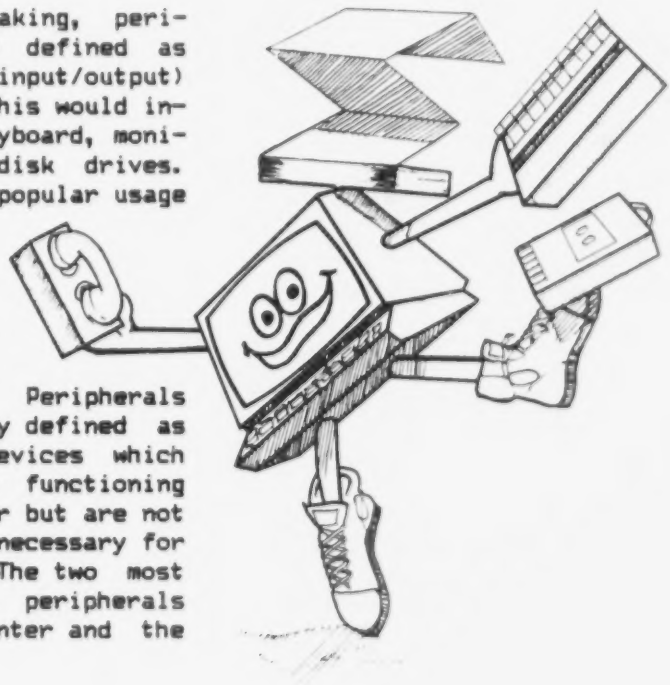
In this module you will be introduced to the following terms:

Daisy Wheel Printer	Electronic Mail	Modem
Direct Connect	Hardcopy	Peripherals
Dot Matrix Printer	Interface	Ports

INTRODUCTION

WHAT ARE THEY?

Strictly speaking, peripherals are defined as all I/O (input/output) devices. This would include the keyboard, monitor, and disk drives. However, in popular usage these I/O devices are referred to as integral parts of the computer itself. Peripherals are generally defined as those I/O devices which enhance the functioning of a computer but are not absolutely necessary for its use. The two most common such peripherals are the printer and the modem.



PRINTERS

HARDCOPY

Printers make it possible for the information stored in a computer to be changed into a printed form. This is commonly called "hardcopy." The advantages of a printed copy of information are too numerous to list. An obvious one is that it allows someone without a computer to view the information. Printed data is less susceptible to damage than information on disks. A printer allows the information to be put into a variety of forms such as letters, memos, ledger entries, or even entire books.

There is an assortment of printers on the market, ranging from the high-speed laser printers (capable of printing 100,000 characters per minute) to plotters which draw diagrams of anything from a house to a space shuttle. The two most common types of printers are the draft quality printer (commonly known as the dot matrix printer) and the letter quality printer (also known as the daisy wheel printer).

DOT MATRIX

The dot matrix printer forms each character by a formation of dots. Each pin in the print head strikes against the ribbon and prints a dot on the paper. The characters are formed when the appropriate pins are struck. The dot matrix printer is fast, capable of a variety of types of printing and is generally less expensive to purchase than other types of printers. The major criticism of the dot matrix printer is that the quality of print is not equal to that of a typewriter. Careful examination of the dot matrix print will reveal the dots that form the letters rather than a continuous line. Many dot matrix printer manufacturers have attempted to overcome this limitation by incorporating a "correspondence" mode into their printers. In this mode the printer makes two passes to form a character and partially overstrikes to form the appearance of a more continuous line. Dot matrix printers will print from 80 to 200 characters per second (cps). In the correspondence mode the speed is reduced to 40 to 60 cps.

DAISY WHEEL

The second popular type of printer is the daisy wheel printer. The daisy wheel printer prints fully formed characters the same as a typewriter. In fact there is no difference in the print quality of a daisy wheel printer and an electronic typewriter, as they may use the same print wheels. While the quality is better than for a dot matrix printer, the print speed is considerably slower. A daisy wheel printer will generally print between 18 and 50 characters per second.

CONNECTING COMPUTER AND PRINTER

Connecting a printer to a computer appears easy, and indeed it often is. Most computers have connections on the back of the case known as I/O (Input/Output) ports. The port or connection can be one of two types--serial or parallel. To connect the computer and printer the ports on each must be the same. The actual method of hookup of one device to another, the computer to the printer, is referred to as the interface. Just as with ports, interfaces can be serial or parallel.

SERIAL INTERFACES

Serial interfaces are more widely used than parallel. The methods for connecting serial ports are easier to use and to understand. A serial interface does not limit the placement of the printer to within twenty feet of the computer, as a parallel interface does. Serial connected printers are more likely to be found in business settings with multiple user systems, where a printer might be needed at a location some distance from the computer.

ARE THE PERIPHERALS AND COMPUTER COMPATIBLE?

If a computer and its peripherals are not purchased as a total package, it is necessary to determine if the ports are compatible. This can be done by working with the same vendor, supplying the vendor with the specifications for the computer as found in the owners manual, or by physically taking the computer to the vendor and insisting on seeing the computer and the peripheral work together.

PAPER FEED PROBLEMS

There are two basic types of paper feeds for printers. One is the friction roller and the second is the tractor feed. The friction roller works just like a typewriter and is fed in the same manner. The paper is inserted from the back and the roller is turned, bringing the paper into view under the printing head. The roller is then turned to the start of the next full sheet and the bale is snapped back into place. A friction roller can use either fan-folded paper or individual sheets.

The tractor feed is more complicated but allows higher speed printing. The "tractor" is a set of wheels on both sides of the printer with tabs that fit into the holes punched on the sides of fan-folded computer paper. As the printer advances one line, the tractor turns one notch pulling the paper with it. This allows for smoother, faster, and more precise printing.

Some of the common paper feed problems are: (1) out of paper, (2) paper tension not proper between the two sides of the tractor, (3) paper threaded wrong into the printing head, (4) blockage of paper flow into the printer, (5) paper bail not in the proper position, and (6) friction roller not engaged.

COMMON PROBLEMS

Most printers announce they are out of paper or there is something blocking the proper feeding of paper with a loud buzz or a blinking light. Careful examination of the printer and its paper supply will generally reveal what is wrong. One simple but frustrating problem results when

printing of a document begins someplace on the page besides the beginning. Before beginning to print, always check that the paper is in the right place and the printer is on.

MODEMS

ONE COMPUTER CAN "TALK" TO ANOTHER

Modem stands for MOdulator/DEModulator. It encodes and decodes computer signals into telephone tones and back. Its purpose is to transmit and receive electronic information. Any computer can talk with any other computer as long as transmission speed, word length, stop bits, and other protocols are set the same.

Information sources available to computer users and made available by modems include commodity prices (everything from the price of pigs in Iowa to the price of gold in Hong Kong), databases, library services, the latest news, transportation schedules, and research information, among others. The use of computerized information sources and databases is growing rapidly and changing the nature of business and education.

To access an information source one needs five things; (1) a computer, (2) a modem, (3) a communication software package, (4) a telephone line, and (5) subscription to an information source. There are two basic types of modems, a variety of communication packages, and an increasing number of information sources.

The two types of modems are the direct connect and the acoustic coupler. The direct connect has a telephone line attached directly to the computer. The software package then generally dials the desired number and gains access to the database. The acoustic coupler requires that the user dial a telephone. When the source is reached, the telephone receiver is placed in a mounting device that translates the sound into electrical impulses that the computer can read. Transfer speeds for most microcomputer modems are either 300 or 1200 baud (no one seems to agree on the definition, but a baud is something like bits per second).

Each database and communication package works differently; however, certain things are common to all. The basic procedure is as follows: The computer is turned on and the communication software is called up. The phone line is hooked up and the source contacted.

Once the source is reached some sort of password, code word, or number is required for entry into the database. After entering the database the user has access to the source's index and can begin looking for the specific piece of

information desired. Once it is found, the data can then be "downloaded" (transferred) onto a disk in the user's computer and read at leisure.

Most information sources operate on a subscription basis. The user must pay a monthly fee, a fee for each time the database is used, and generally must pay for the phone call. The price for information sources varies. Some medical and legal sources are very expensive, while many general purpose databases are quite reasonable. The amount of information available via a computer is staggering and growing at an ever-quickening pace.

ELECTRONIC BULLETIN BOARDS

One of the most popular information applications is the electronic bulletin board. This is an information source by which the users communicate with one another rather than a database. Literally hundreds of these bulletin boards have sprung up in the last few years. They deal with subjects ranging from the exchange of esoteric scientific data to electronic dating services. Electronic bulletin boards are expected to grow in popularity and use.

The use of modems to transmit information is becoming invaluable to traders and brokers, researchers, doctors, law enforcement, and to general business. Electronic mail is becoming increasingly important as a means of conducting business swiftly and efficiently. Some theorists suggest that in the future much of the day-to-day business will be done at home and transmitted all over the world with computers and communications devices.

ELECTRONIC MAIL

An increasing use of computerized equipment is to set up electronic mail services to send information. The system involves computer terminals, teleprinters, telephone lines, photocopiers, and wordprocessors. Written documents--ranging from personal letters or business memos to books--can be transmitted through electronic mail.

Most users find that sending information through electronic mail is faster, less expensive, and more reliable than the old U.S. mail. In fact, the U.S. Postal Service now has an electronic mail service. People who are on an electronic mail system check their electronic mailboxes periodically to see if they have any mail or messages, just as they would check their regular mailboxes.

The difference in speed between physically sending a letter, traditional style, and sending something through electronic mail, can be seen in the method. Without electronic mail, a

letter is dictated or composed, typed or printed out, checked, perhaps retyped or printed again, placed in an envelope, and mailed. As many as 4 days later, it arrives at its destination. Using electronic mail, the letter can be composed at the terminal, checked and corrected, and transmitted. It can be sent to a single destination or several, in seconds--whether to someone in your office building or to someone across the country.

Activity One: Define terms in glossary.

Activity Two: Complete student worksheet #6 as directed by your teacher.

MODULE SEVEN

IMPACT

COMPETENCY:

Describe the impact of the computer on society in the areas of privacy, crime and work.

OBJECTIVE:

Given cartoons, describe the impact computers have had on society in a written essay format.

ACTIVITIES:

Read assignments
Share implications on the societal effects of computers from cartoons.

MODULE SEVEN

IMPACT

INTRODUCTION

COMPUTERS ARE CONSTANTLY CREATING CHANGES IN OUR LIVES

An old proverb states that the only thing that is constant is change itself. Nowhere is that more true than in the computer field. This module looks at some of the ways that computers are changing the way we work and do business, how they affect our relations with each other and the government, and the manner in which society itself is beginning to change in response to the impact of computer technology.

Perhaps you are not aware of some of the changes computers have already made in your life. Have you ever gotten or watched someone get money from an automatic teller machine at a bank or even in a convenience market? Automatic tellers have become possible because of developments in computers. Video games are very specialized computers with sophisticated graphics. A use of computers that you are already aware of is in standardized testing. Answers are marked on a special sheet with a dark pencil and then a computer with an optical reader scores the test.

The computer you have used the most you are perhaps not even aware of: the telephone. Everything that happens when a phone call is made is controlled by a computer. Beginning with getting the dial tone, then connecting with the right number, and even in the printing of the bill, computers control the process.

As computers become more sophisticated and as people find more ways to put this tool to work, they will have an increasing impact on how people live. Some of the ways in which society will change the most are: how work is defined; how it is done; and how information is processed, used, and protected.

JOBS CHANGE BECAUSE OF COMPUTERS

Jobs are already changing as a result of the impact of computers. The modern office of today bears little resemblance to the offices of even 30 years ago. Clerical work, bookkeeping, information processing, inventory control, and management have all changed.

One of the great changes in work is just beginning. Robots in the last few years have ceased to be just creatures in science fiction stories and are being used in a variety of industries. As this trend continues, many jobs once done by semi-skilled and even skilled workers will be performed by machines. This means that many people will have to re-learn how to make a living several times in their lives.

SOCIETY CHANGES BECAUSE OF COMPUTERS

Computers are having a great impact on society through the use of information processing. For the first time in history it is possible for a person to access much of the information available to the human race. This information may be as complicated as all of the mathematical calculations that Einstein used to support his Theory of Relativity, or as simple as whether or not you balanced your checkbook last month.

The implications of this availability of information on education, human rights, privacy, and the ability to learn and to adapt are incredible. People are just beginning to explore the possible effects of this "information revolution" on society. As you read these chapters on computer applications, robotics, computer crime, and the future, try to think about how the use of computers effects you. Also, what contributions might you be able to make to the use of this new tool?

Activity One: Read an additional assignment as directed by your teacher.

Activity Two: Complete Student Worksheet #7.

MODULE EIGHT

CAREERS

COMPETENCY:

Identify careers in computing and occupations which use computers as tools.

OBJECTIVE:

Given a list of computer career descriptions, identify the careers with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete study guide

MODULE EIGHT

CAREERS

In this module you will be introduced to the following terms:

Computer Operator	Programmer
Computer Technician	Systems Analyst
Data Entry/Keypunch Operator	

INTRODUCTION

The world of work is changing so fast that it is hard to keep up with the new developments. Many people have difficulty adjusting to the changes and want to hold on to the former ways, as illustrated by the cartoon. This process, which has been going on since the industrial revolution, began in the 1850's and has continued to accelerate. Three major factors have caused these changes in the nature of work. The first is technological change. The second is a change in consumer demands, and the third is an alteration of societal expectations. These three factors are all interrelated, with one sometimes giving rise to the others.

TECHNOLOGY CHANGES WORK

The impact of new technology on the nature of work is one of the easiest changes to see. A good example of this is farming. A hundred years ago almost 80% of all Americans made their living as farmers. Today only about 3% of the population are farmers. This reduction in the number of farmers has been accompanied by massive increases in productivity. New tools, machines, and procedures have enabled fewer people to do more work. There are also a great number of people employed in farm-related fields that didn't previously exist. Examples are farm machinery repair, fertilizer sales, and grain elevator operation. Examples like this can be found in every industry in America. As people invent new and better tools and processes, it takes fewer and fewer workers to do the same job but it also creates new jobs.

Consumers' changing demands for goods and services also alter the nature of work. These demands are related to the new products that technology creates. An example is the whole field of home computers. If engineers and technologists had not been able to build small, simple, and inexpensive computers, there would be no home computer market.

In addition to the desire for new things, consumer demands for new services create many new types of work. The current boom in physical fitness has resulted in health spas, weight rooms, and workout centers, all of which need skilled people to help provide services the public wants.

Acknowledging this continuous change in the world of work, it is possible to put the field of computer-related careers into some kind of perspective. The job market for people with computer skills is growing rapidly. The U.S. Department of Labor says that by 1990 there will be a nearly 50% increase in computer-related jobs and that over 80% of all jobs will use or relate to computers in some way. The computer, like other new tools before it, is allowing fewer people to do the work more efficiently.

Computer careers can be broken down into three major categories. The first is the technical careers of computer scientists, engineers, and developers. The second is the operations careers. The third group is the vast majority of occupations which will use computers as tools.

TECHNICAL CAREERS

The technical careers require the most training and specialized skills. These people are involved in developing new hardware applications. Normally, careers in this field require a minimum of a college degree and some experience. It is important to note that while this field is growing rapidly, it is not where the largest number of people will be employed.

OPERATIONS CAREERS

The operations careers involve jobs which install, maintain, and run computers. These occupations range in complexity, from keypunch operators who require a few weeks of training before getting a job, to systems analysts who generally need a college degree. In between are all levels of repair people, technicians, data entry people, and programmers. This is one of the fastest growing fields of work in America today.

CAREERS USING COMPUTERS AS TOOLS

The final category of computer careers involves people who will use computers as tools in their day-to-day work. There are few occupations today in which computers are not used. The use of computers in business and industry is expected to accelerate within the next twenty years. This produces a situation in which people entering the world of work not only need all the traditional skills (ability to read, write, do mathematical computations, communicate, and work well with others), but also, they need to be familiar with some of the many applications of computers in the world of work.

Certainly careers in computers are going to continue to change rapidly. Everything we know about computers now will probably be different in ten years. If you are the type of person who likes to learn, to adapt, and to find new ways of doing things, then you might enjoy a career in computing.

Activity One: Read an additional assignment as directed by your teacher.

Activity Two: Define terms in glossary.

Activity Three: Bring into class the job ads from the classified section of a Sunday edition of a newspaper. Circle that portion that refers to computer skills.

MODULE NINE

WORDPROCESSING

COMPETENCY:

Demonstrate proficiency in microcomputer wordprocessing software usage.

OBJECTIVE:

With a computer and compatible wordprocessing software, enter and edit a letter as directed and complete the Wordprocessing Keystroke Command Summary with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Student Worksheet #9
Complete wordprocessing program activities and revisions with 80% accuracy.

MODULE NINE

WORDPROCESSING

You will be introduced to the following terms in this module:

Cursor	Right Justify	Search & Replace
Dedicated Wordprocessor	Print	Wrap Around
Format	Save	Wordprocessing

INTRODUCTION

Wordprocessing is becoming a commonly used term. The cartoon below would suggest that it has been around for years. This interpretation of wordprocessing is very general but is correct in that it involves the manipulation of words. Most modern offices are equipped with a computer and software package that combines typewriter capabilities with computer storage. Thus a letter, memo or document is entered on the computer's keyboard, appears on the screen, and can be saved to a disk. The wordprocessing package allows for adjustments of margins, spelling, and paragraphs without retyping the letter. With the letter stored on disk, multiple copies can be made or a few details can be changed without retyping the letter.

A FUNDAMENTAL SKILL?

Many experts in the field of computer literacy argue that wordprocessing is the fundamental skill in computer use. Certainly, the use of wordprocessors is the fastest growing and most widely used computer application. Virtually every letter, bill, advertisement, or response from a business is produced by someone using a wordprocessor.

EFFICIENT

The use of wordprocessors in this society has grown rapidly for three reasons. First, the wordprocessor integrates a series of functions that used to be handled separately in an office. One person with a computer can type, edit, format, print, file, and distribute a letter in a very short period of time. This allows much more efficient and productive work, hopefully reducing the cost of goods and services to the public at large.

FLEXIBLE

Second, a computer used as a wordprocessor is much more flexible than traditional office methods. Editing for letter-perfect documents, which was a major source of frustration for the secretary, is now relatively easy. Repetitive types of correspondence can be done once, stored, and called up whenever needed. Also, the computer makes the storage of documents quicker and easier, and requires much less space.

HANDLES LARGE QUANTITIES WITH EASE

The final reason for the growth of the use of wordprocessing is the incredible information explosion. A commonly quoted statistic maintains that 75% of all the data in existence today has been produced since 1960. The total volume of information available in the culture as a whole is doubling every five years. With these figures in mind, it is easy to see why word and information processing has had to be automated.

Wordprocessors are used by every type of profession, business, and industry. They are used in all levels of government, schools, and hospitals. They are even beginning to be used in the arts. The need for skilled wordprocessor operators far outstrips the supply, and this trend is likely to continue for some time.

DEDICATED WORDPROCESSOR

There are two basic types of wordprocessors--a "dedicated" wordprocessor and a microcomputer using wordprocessing software. A dedicated wordprocessor is not one that works harder; rather it is a machine designed so that it can only be used to process documents and information. These devices often have highly specialized keyboards with unique function keys controlling cursor movement, editing, formatting, and printing. They are generally faster, more efficient, and capable of much more production than a microcomputer. Dedicated wordprocessors are usually only found in offices

with high volumes of work. This is due to their expense and limited function of only producing and storing documentation.

WORDPROCESSING SOFTWARE

A microcomputer with wordprocessing software is not as fast nor as efficient as the specialized machine. They often lack most of the special function keys which can greatly speed work. However, a microcomputer is much less expensive and more flexible. They are found in many small businesses, homes, and also in large businesses.

A microcomputer functioning as a word processor generally needs two disk drives. The software goes in the dominant drive and a formatted data disk goes into the second drive. A wordprocessing program is a lengthy and complex device. It will generally completely fill a disk, thus the second drive is needed for document storage.

Since the microcomputer lacks most of the special function keys that a dedicated wordprocessor has, its functions are controlled by keystroke commands. Keystroke commands vary from program to program, but generally consist of the Control or Escape key pressed in conjunction with another key or keys. A specific sequence will cause the computer to do a particular operation, e.g., move the cursor, delete, save a file, or print a file. To effectively use a wordprocessing program, these command sequences must be learned. Fortunately, software publishers have gone to great lengths to make their software as powerful, flexible, and easy to learn as possible.

One important note should be made. Many microcomputers have some of the special function keys similar to those of a dedicated wordprocessor. When these exist it makes a program easier to learn and use.

Wordprocessing programs are of two major types: a menu driven program and a prompt driven one. The menu driven software begins by presenting a screen full of information much like the menu in a restaurant. The operator selects the desired operation and the computer executes it. The prompt driven program begins by asking the operator to select what he wishes to do and then executes the program in response to instructions. Menu driven software is by far the most common and is generally easier to learn. The prompt driven software is harder to learn but is faster to use once it has been mastered.

THE COMPUTER SENDS YOU MESSAGES

The "message" is another important piece of information that the program will give as it is executing commands. This occurs in both menu and prompt driven systems. The message is the computer attempting to communicate with the operator.

Messages can be simple ones telling you to wait while a procedure is being executed or that it has been executed. A more complex message is one which informs the operator of potential difficulty or error. PAY ATTENTION TO THE MESSAGE!! It can save you a lot of grief.

BASIC FUNCTIONS

All wordprocessors, be they software packages running on a home computer or a highly specialized dedicated wordprocessor, have four basic functions. These are editing, saving, formatting and printing. The following is a general description of these functions. You must refer to the documentation that comes with your specific software for details and information.

Following is a general description of these functions. You must refer to the documentation that comes with your specific software for details and information.

Edit (Create)

MAKING CHANGES WITH EASE

Editing is the first basic function of any wordprocessor. It may be defined as the act of creating a document and then manipulating the text until it is in the desired state of completion. This function includes the operations of entering text, moving the cursor, deleting, inserting, wrap around, and search and replace.

CURSOR MOVEMENTS

The cursor is that blinking line or dot where letters appear on the screen as you type. All wordprocessors provide for several ways to efficiently move the cursor. These commands may be different from system to system but the effects will be the same. Common types of cursor movements include one character forward or back, one word forward or back, previous or next line, beginning or end of paragraph, and to the beginning or end of the document. Scrolling is the process by which the computer moves through a document one full screen at a time. This is a very useful command for scanning a long document.

Unless you are a perfect typist who always knows precisely what you want to say, you will make mistakes. These are easy to correct. Move the cursor to the mistake and delete the letter, word, line, paragraph, or page. Again, the specific command to make the computer perform these operations will vary from system to system, but the principles are the same. Once the offending letters have been removed, type in the correct ones. WARNING: Once you delete something it is gone, so make sure you really want to dispose of it.

Two major operations distinguish the wordprocessor from the typewriter. The first is "insert" and the second is "wrap around". Insert is the procedure whereby the computer creates a space for a new character to be entered into a line of the text. In the insert mode you cannot type directly over an existing character. Even when the cursor is on a letter, as you type another one it will be inserted rather than deleting an existing letter. On most wordprocessors, the insert can be turned on or off. Experiment with this while turning the insert mode on and off, noting the difference in the way text is entered.

NO NEED TO USE A "RETURN" KEY

The second difference you will note is the fact that the computer automatically returns the cursor to the left side of the screen when the right end of the line is reached. This is called "wrap around." The text is said to wrap around the screen. The only time that the return key is used is to start a new paragraph. If you are accustomed to using a typewriter it will probably take awhile to adjust to not using the carriage return at the end of each line. However, once you become used to it, you will find that wrap around is faster and easier to use. Some wordprocessors allow the wrap around feature to be turned on and off like the insert mode. Again, experiment with the computer and the wordprocessing manual to see how it works.

"SEARCH AND REPLACE"

Another important feature of the editing process is the "search and replace" mode. This is a procedure which can be used to replace all occurrences of a wrong or misspelled word.

For example, suppose you have written a long letter to the principal of your school suggesting that something be done about a problem in the school. In the course of the letter, you refer to the principal by name six or seven times. After the letter is finished and mailed you decide that you want to send the same letter to the superintendent. Instead of going through the entire document and changing the name each time, the search and replace mode can be called up. The name to change is identified and the name to change it to is identified. When the return key is hit the computer will automatically make the changes. You can imagine how much time this would save if you had to do this type of thing every day.

Save

The second basic function of any wordprocessor is saving. Saving is the process by which the text entered onto the screen is stored on a disk for future use. It is very important to know how to save documents because what is on

the screen is only in the RAM memory and will be lost when the computer is turned off. By saving the document on a disk, it will be available to call up and work on or use later.

CAUTION: SAVE OFTEN!! Fluctuations in electrical current, lightning strikes, a computer accidentally turned off, and a number of other things can cause a loss of information stored in the temporary memory. Save regularly to prevent severe loss and frustration.

When saving a document it is important to know the file name conventions of the system in use and the different types of files. Check once again the file name conventions of the word processor you are using. Keep them in mind whenever you are naming a file.

NEW FILES

There are five major types of wordprocessing files: new, existing, renamed, and backup. A new file is one that is being created for the first time. It must be named and saved in a particular way. Study the wordprocessing manual for the command sequence which will save a new document.

EXISTING FILES

An existing file is one that has already been created and is being called up again to be edited further or used. Most often the procedures for creating a new file and calling up an existing one are identical. The only difference is that when you are asked for the file name you specify the name of an existing file rather than creating a new name.

RENAMED FILES

A renamed file is one you wish to distinguish from a previous version. For instance, when you work on and save an existing file, any changes you have made will be retained and will overwrite the earlier version. If you wish to retain the different versions of the document separately, you must name each edition differently.

BACKUP FILES

A backup file is one that the wordprocessor automatically creates to protect your files from accidental loss. Not all wordprocessors do this but it is a comforting feature. Generally, a backup file must be renamed before it can be used.

Finally, a print file is one that has been formatted and is ready for printing. Not all wordprocessors use this type of file. Some print directly from the edited file, while others format and then print in two operations. The manual will explain how your wordprocessor works.

COMMON WORDPROCESSING PROBLEMS

Several common problems occur for most people just learning wordprocessing. The first problem is with the file name. You keep trying to get an existing document back, but don't

succeed. Check the spelling and placement of the extension. A computer is a very literal device. It is not able to tell that the file wanted is spelled one letter differently than what you are asking for and will keep responding that the file does not exist. If you have difficulty calling up a file, call up the directory of file names from the data disk and check the exact spelling.

The second problem often occurs when the proper drive is not specified when saving or recalling a document. Generally, a file cannot be saved to the disk that the wordprocessing program is on. It is usually too full. Doing this will at a minimum be frustrating and at worst could cause the document to be lost. When recalling a document make sure that you are specifying the proper drive. The computer can only read one drive at a time. If you are asking drive A about a file that is on drive B the computer will not be aware of the existence of the file. Learn to always specify the drive when saving or calling up a file.

A third difficulty can arise when saving a document to a disk that is too full. This can be prevented by checking to see how full the disk is at the beginning and estimating how much space the file will take. If there is any doubt, use another disk.

Format

Formatting is the process by which the text is arranged on the page for printing. It is the third basic function common to all wordprocessors. All wordprocessors have what is known as a default setting. This default setting is a standard layout the computer will use to print a document unless instructed otherwise. Check the wordprocessor manual to see what the default format is.

Some of the things commonly changed in the formatting process are line spacing, centering of titles and headings, line length, lines per page, justification, and the manner in which the pages are numbered.

The procedure for changing these items varies from program to program. Some require the format to be set before text is entered. Others complete the document and then format as a separate step. Still other wordprocessors make use of commands inside the text of the document to cause special effects when printing.

Formatting is a procedure which laps over into both the editing and printing processes. One operation which is used for both formatting and editing is called the block copy and

move. This is used when it is desirable to move an entire section of a document from one place to another. The procedure is the same in most systems. First, the beginning and the end of the block is marked with special characters. The text is then copied, moved to its new location, and recreated. This device saves time and effort.

Many of the commands necessary to change the format are known as embedded print commands and are written into the text of the document as it is being created. Much of the formatting process is inseparable from the printing process.

Print

Printing is the final function common to all wordprocessors and is the procedure which makes the document appear on paper. As in formatting, most wordprocessors have a default print setting. In fact, the default for print and format may be the same. Changing the default print settings can be done in two ways: by the use of embedded print commands and by changing items from a menu or in response to prompts as the printing process begins.

SPECIAL EFFECTS

Many special printing effects are possible, depending on the capabilities of the wordprocessor and the printer. A good print program can number the pages in any order desired, stop for the insertion of single sheets of stationery, create indexes and tables of contents, chain multiple files together, and include standard blocks of text from other files.

The use of embedded print commands can cause the printer to underline, boldface, italicize, create new pages, print special characters from foreign languages or mathematics, and create footnotes. All the capabilities need not be learned by the beginning wordprocessor. In fact, there is no real need to learn them unless they are going to be used. Most people need very little more than the default format and print settings which come with the wordprocessor.

CAUTION: The more powerful a wordprocessing program is the more time it will take to master it. Don't let the number of items to be learned overwhelm you. A few simple, basic commands will do most of the things you need in the beginning.

Activity One: Enter the following paragraphs - complete the following steps.

Activity One for Module Nine

EDITING AND FORMATTING

Two of the primary functions of a word processor are editing and formatting. In learning to use a particular word proceeding program, most of the functions you learn to use are either editing or formatting functions.

After saving a document on a disk, you can always recall it and do further editing if needed. Various refinements and alterations can be made in the document without retyping the whole thing.

When you're editing, you're concerned mainly with the content of the document. Does the document contain all the information it is supposed to? Is the spelling and grammar correct? Should the words, sentences, or paragraphs be rearranged? You will find yourself using the insert and delete functions. The block-action commands make it easy to make minor alterations in relatively large portions of test. Many of these commands will become automatic for you; others may not be used as often and may require looking up in the help system.

Once you are satisfied with the content, you can then focus on formatting the document. Formatting has to do with how the document will look on a printed page. You will begin to learn aobut formatting functions in the next module.

Activity One for Module Nine - Steps

STEPS

1. DELETE the word "particular" in the second sentence of the first paragraph.

2. INSERT the sentence "This saves valuable time." after the first sentence in the second paragraph.

3. In the first sentence of the third paragraph, change both occurrences of "you're" to you are". Use the REPLACE command. OA-R

4. Break the third paragraph into two paragraphs. The new paragraph should begin with "You will find . . .".

5. Delete the last sentence in the last paragraph. OA-Y

6. Change "proceeding" to "processing" in the second sentence of paragraph 1.

7. Using the MOVE command, move the second paragraph to the END of the test, making it the last paragraph.

8. It appears that the paragraph beginning "Once you are satisfied . . ." should be the final paragraph. Use the MOVE command to move that paragraph to the end.

9. Use the REPLACE command to replace each occurrence of "alterations" with the simpler word "changes". Look through the text to be sure that the replacements have been made.

10. SAVE using the Filename: WP1

11. Print the edited file and turn it in to your teacher to sign off.

MODULE TEN

DATABASE

COMPETENCY:

Demonstrate proficiency with a microcomputer database.

OBJECTIVE:

Given a computer and compatible database system, enter and edit a sample database and complete the Database Command Summary with 100% accuracy.

ACTIVITIES:

Read assignments
Define terms
Complete Keystroke Command Summary
Create a database

MODULE TEN

DATABASE

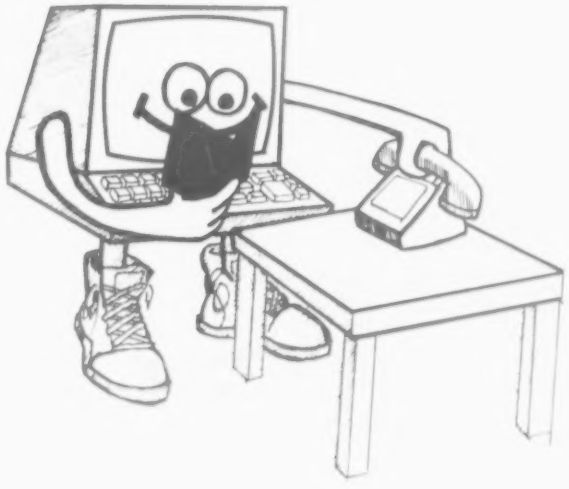
In this module you will be introduced to the following terms:

Database	Field Size	Record
Field	Field Type	Relational Database
Field Name		

INTRODUCTION

ISOLATED INFORMATION

Data and database are two terms that the increasing use of the computer has popularized to the point of becoming "buzz" words. Data is an isolated piece of information that is of little use when it is out of context. A database organizes information in such a way that it has meaning and is easily used.



If you had a phone number (data) by itself it would be of little use. If you had the phone book (database) the number would be related to other information, such as names or addresses and thus be useful.

Databases are not limited to computers. We all use some kind of database in everyday life. The phone book mentioned above is a good example of a commonly used database. Other examples of frequently used databases include dictionaries, address books, recipe file boxes, mail order catalogs or library card catalogs.

What is the value of a computerized database? Certainly, there are some things that can be performed more efficiently without one. A good example of this would be a personal address book. It's inexpensive, portable, easy to update, and has plenty of capacity for most people's needs. As you know, a computer can only do what a human being can do.

It's advantage is that it is much faster, can store more information, and if programmed properly, makes fewer mistakes.

ADVANTAGES OF COMPUTER DATABASES

One of the nice things about a computer database is that it can look up a specific piece of information under any of its headings. Using our example of an isolated phone number, if we knew that this was a Phoenix phone number and the computer database contained all of the Phoenix numbers, the number could be entered and the computer could provide the name and address of the person associated with it.

All databases are arranged to make some piece (or pieces) of information readily available. This feature that a database is organized around is called its key or purpose. For example, the phone book is arranged alphabetically to make it easier to find someone's name. Thus the name is the key to using that database.

THREE TYPES OF DATABASES

Computer databases may be divided into three types: RELATIONAL, HIERARCHICAL, and NETWORK. Hierarchical and network systems are more complex than the relational system, are usually programmed for a mainframe computer, and require extensive designing to satisfy a particular purpose. As the name implies, the hierarchical system shows an organizational chart of sorts, known as a tree. The network system might be used to show ways in which two organizations merge or overlap.

RELATIONAL DATABASES

The relational database is most frequently used on microcomputers and thus will be the topic of this module. It presents data in terms of tables of rows and columns and is easy for most people to use. The layout is similar to a spreadsheet but no calculations are performed.

Databases have their own vocabulary. Figure 10-1 is a sample database; a discussion follows explaining the parts and terms.

NAME	SOCIAL SECURITY NUMBER	ACTIVITY CARD
Sam Smart	526-87-3851	Y
John Sampson	865-90-7325	N
Patricia Sanderson	235-37-8367	N
Joe Blackington	923-38-4857	Y
Samson Chartreau	456-34-7465	Y

Figure 10-1. Sample Database

RECORDS AND FIELDS

The horizontal information in a database is called a RECORD and corresponds to a row of a spreadsheet. In the sample all information about Sam Smart would be referred to as a RECORD. A record is made up of fields. The FIELDS run vertically and correspond to the columns of a spreadsheet. Thus the names, social security numbers, and activity card indication would each be a field. The headings across the top of the database are called FIELD NAME. FIELD SIZE refers to the amount of space provided in the database for the entry of data under each field name. Some software programs will have the field size predetermined and offer an option for changing this space, others will ask that the field size be set. FIELD TYPE refers to the type of information that can be entered into each field. Most databases allow for three types of fields: CHARACTER, NUMERICAL, and LOGICAL. In the sample, the individual's name would be an example of a CHARACTER FIELD as it contains letters. The social security number would be an example of a NUMERICAL FIELD. A LOGICAL FIELD is used for data that can be entered as true or false or, for that matter, yes or no. The entry under field name "Activity Card" would be a LOGICAL FIELD since data is entered with a yes or no response.

HOW IS IT USED?

What does one actually do with a computer database? A paper database and a computerized one actually function much the same. Using the example of the address book, the names and addresses of new friends are recorded, and changes (updates) are made as your friends move. Maybe someone moves and contact is lost with them; then they are erased from the book. Most important, when you want to call or write someone you look up their phone number or address in your address book.

A computer database can be used in the same way with its various functions. You ENTER new information, EDIT (or update) existing data, SORT the data according to a particular need, READ (or display) the information for your use, and PRINT (or report) the needed data.

Different databases and filing systems will use different commands to execute these functions. However, the basic operations are the same in all databases; they allow for entry of new data, editing of existing information, reading of the information, sorting by some predetermined pattern, and printing or reporting on the data contained within them.

Activity One: Define terms in glossary.

Activity Two: Use the documentation for the database you are using to complete Student Worksheet #10.

MODULE ELEVEN

SPREADSHEET

COMPETENCY:

Demonstrate proficiency in electronic spreadsheet usage.

OBJECTIVE:

Given a computer and compatible electronic spreadsheet program, enter and edit two sample spreadsheets as directed and complete the Spreadsheet Command Summary with 100% accuracy.

ACTIVITIES:

Read assignments
Complete Keystroke Command Summary
Complete Sample Budget Spreadsheet
Complete Sample Grade Sheet

MODULE ELEVEN

SPREADSHEET

INTRODUCTION

ACCOUNTING AND MANAGEMENT TOOL

No other microcomputer application has received such immediate acceptance as the electronic spreadsheet. It has been used as an accounting and management tool by housewives keeping the family budget, teachers recording grades, small businesses controlling their inventory, and the world's largest governments and businesses keeping track of their complex financial dealings.

A number of electronic spreadsheet programs are available, each designed to meet a particular need or to appeal to a specific audience. While these programs have different names and appear to be very different, they all have many things in common.

MATRIX FOR RECORDING, SUMMARIZING, AND MONITORING DATA

A spreadsheet (whether it is paper or electronic) is a matrix on which data can be recorded, summarized, and monitored. All spreadsheets have five basic parts: (1) rows which are the horizontal lines, (2) columns which are the vertical lines, (3) labels or headings which name the rows and columns, (4) formulas which are used to make the calculations to provide summaries and totals, and (5) the entries which are usually numerical data.

So why has the electronic spreadsheet become so popular? There are actually four reasons. First, spreadsheets are very flexible. They can be designed to summarize data in different forms with relative ease. Second, once the formulas have been entered and fixed, the electronic spreadsheet will automatically remember the formula and recalculate the entire sheet whenever a change in the data is entered.

This leads to the third reason for their popularity. They are very fast and can be used to make projections and predictions based on changes in the data. A skilled

keyboard person can enter data much faster than a person can by hand, and few people could come up with calculations and recalculations as fast as the computer does.

Finally, the electronic spreadsheet can store an immense amount of data in very little space. One disk can store the same amount of information that used to be contained on several whole columnar pads. This information can be printed out when desired.

Sophisticated business programs can actually summarize and provide reports from several separate spreadsheets into one format. An example of this are tax packages which will do most of the work necessary to make a year-end tax report.

Electronic spreadsheets have been introduced into almost every type of business, industry, and service organization. Their use is continuing to grow rapidly. The ability to effectively handle this type of software is a prime job skill for anyone in management, office work, or bookkeeping.

BASIC SPREADSHEET OPERATIONS

SIMILAR TO WORDPROCESSING PROGRAM

A microcomputer functioning as an electronic spreadsheet has many similarities to a wordprocessing program. Generally two disk drives are needed. The software goes in the dominant drive and a formatted data disk goes into the second drive. An electronic spreadsheet is a very complex and lengthy device. It will usually completely fill a disk, thus the second drive is needed for data storage.

KEYSTROKE COMMANDS

As with wordprocessing, a spreadsheet's functions are controlled by keystroke commands. These command characters will vary from program to program, but generally consist of the Control or Escape key pressed in conjunction with another key or keys. A particular sequence will cause the computer to do a specific thing, e.g. move the cursor, delete, save a file, or change the format of the spreadsheet. To effectively use a spreadsheet program, these command sequences must be learned. It is again important to note that many computers have some special function keys. When these keys exist it makes a program easier to learn and use.

Electronic spreadsheet programs, like those of wordprocessing, are of two major types, menu driven and prompt driven. The menu driven software begins by presenting a screen full of information much like the menu in a restaurant. The operator selects the operation he or she wishes to perform and the computer executes it.

The prompt driven program begins by asking what the operator wishes to do and then begins execution of the program in response to instructions. Menu driven software is by far the most common and is generally easier to learn. The prompt driven software is harder to learn but is faster to use once it has been mastered.

MORE "MESSAGES"

The "message" is another important piece of information that the program will give as it is executing commands. This occurs in both menu and prompt driven systems. A message is the computer attempting to communicate with the operator. Messages may be simple, telling you to wait while a procedure is being executed, or that a procedure has been executed. A more complex type of message is to inform the operator of potential difficulty or error. Again, PAY ATTENTION TO THE MESSAGE!! It can save you a lot of grief.

CURSOR MOVEMENT

Cursor movement is very similar to that found in wordprocessors. In fact, there are several integrated systems where one set of commands will apply to a wordprocessor, a spreadsheet, and a database. This trend in software development toward integrated command systems is growing.

SIMPLE CURSOR MOVEMENT

Movement of the cursor is somewhat simpler in a spreadsheet than in a wordprocessor. Since it consists of only rows and columns, the commands to move the cursor are largely concerned with this type of movement. All spreadsheet programs provide for moving the cursor from column to column, row to row, top to bottom of column, and one end of the row to another.

Spreadsheet matrixes are generally labeled across the top as column A, column B, etc., and down the side row 1, row 2, etc. This set of coordinates allows the cursor to be moved in response to a "Goto" command. The goto command is entered, the specific coordinates are given, and the cursor moves to the specified place on the spreadsheet.

All computers will display only a portion of the potential spreadsheet at anytime. Generally, depending on the size of the computer's monitor, the screen will display about 10 columns and around 20 rows. Most spreadsheet programs are capable of handling sheets of over 50 columns and up to 250 rows. To move around on these larger spreadsheets, scrolling commands are used. These will allow the operator to move in screen-size portions up, down, right, and left. Check your manual to see what the scrolling commands are for the system you are using.

ENTERING

All information on any spreadsheet is of three types: labels, formulas, and entries. Each type of information is handled differently by the program. Labels are the titles that are given to the various rows and columns. These allow the user to know where they are on the spreadsheet and what the particular area represents. LABELS

Formulas are the mathematical equations which will, once they have been entered, do the calculations necessary to summarize and relate the data on the spreadsheet. The labels and formulas provide the framework in which the spreadsheet operates. FORMULAS

Entries are the actual information which the spreadsheet displays. Entries can be words, e.g. the name of the person a check has been written to, dates, and numerical data. All electronic spreadsheets provide different modes for entering these various types of data. ENTRIES

SAVING

Saving is the process by which the information you have entered onto the screen is stored on a disk for future use. It is very important to know how to save your spreadsheets because what is on the screen is only in the RAM and will be lost when the computer is turned off.

When saving a spreadsheet, it is important to know the file name conventions of the system in use and the different types of files. Check the file name conventions of the system you are using. Keep them in mind whenever you name a file.

There are three types of electronic spreadsheet files: new, existing, and renamed. A new file is one that is being created for the first time. It must be named and saved in a particular way. Study your manual for the command sequence which will save a new spreadsheet. NEW FILE

An existing file is one that has already been created and is being called up again to be edited further or used. Most often the procedures for creating a new file and calling up an existing one are identical, differing only in that when you are asked for the file name you specify the name of an existing file rather than creating a new name. EXISTING FILE

A renamed file is one that has its name changed so as to distinguish this version from a previous one. NOTE: When you save an existing file to its original name this new RENAMED FILE

version will overwrite and thus obliterate the earlier version. If you wish to retain the different versions of a particular spreadsheet you must rename each new version differently.

SPREADSHEET DESIGN

All electronic spreadsheet programs come with a default sheet design. This is generally the one that appears whenever the program is first booted. In addition, most programs have a variety of ready-made formats which may be applied to common accounting needs. Some of these could be a personal check balance sheet, a cash flow program, a tax program, and any variety of other specialized uses.

All spreadsheet programs also provide for ways to customize the default layout to meet your needs. More columns or rows can be inserted. Columns may be enlarged. Formulas and labels can be both modified and fixed so they can't be disturbed. The columns of data can be justified in different ways and be displayed as graphs, with dollar signs, decimals, and in scientific notation. Again, each program will vary in what can be done, and the manual must be studied to learn the capabilities of your spreadsheet.

MATH FUNCTIONS

A spreadsheet is essentially a device to aid in the summarizing and manipulating of a mass of numerical data. The electronic spreadsheet has gained such popularity because it can quickly and automatically do these sophisticated mathematical operations. The built-in functions of a spreadsheet vary from program to program. All will add, subtract, multiply, and divide. The math functions a spreadsheet will do beyond these basic operations depends on the power and the precision of the program.

Among the common mathematical operations electronic spreadsheets can perform are: algebraic, statistical (averages, sums, medians, ranges, min/max, and various statistical tests), trigonometric, logical, and relational.

It is beyond the scope of this module to go into these more complex operations as some of them require knowledge of advanced mathematics. However, it is important to be aware of these types of functions in case your application requires this kind of information at some time.

Activity One: Complete the Keystroke Command Summary on Student Worksheet #11a with the commands which can be used to modify the default spreadsheet. Also, use the manual and make a list of all the specialized formats your spreadsheet provides. Complete Student Worksheet #11b.

Activity Two: Create a budget worksheet using the Sample Budget provided. The operations which will need to be performed are:

(1) Widen the item column to 20 characters.
(2) Label the columns.
(3) Change the format to the dollars-and-cents format, which will create 2 decimal places and add an extra 0 to values with just one decimal place.
(4) Fix labels.
(5) Enter the formula to total expenses. This will be the sum of the items within the two categories of "Fixed" and "Flexible". Try using the command to replicate the formula for each column.
(6) Enter the formula that will tell you what your savings will be: income minus total expenses. Don't forget to replicate!
(7) Enter the data.
(8) Try changing your income or expenses to see the automatic recalculation.
(9) Save the spreadsheet to a data disk, naming the file BUDGET.
(10) Print the spreadsheet and turn it in to the teacher to sign off.

SAMPLE BUDGET

		MONTH	
ITEM	Jan.	Feb.	Mar.
INCOME	220.00	220.00	220.00
EXPENSES--FIXED			
Lunches	40.00	40.00	40.00
Transportation	40.00	40.00	40.00
Books	10.00	10.00	10.00
Club Dues	5.00	5.00	5.00
Other	20.00	20.00	20.00

EXPENSES--FLEXIBLE			
Hobbies	8.00	10.00	8.00
Snacks	5.00	5.00	5.00
Movies	20.00	10.00	8.00
Clothes	20.00	20.00	30.00
Gifts	0.00	10.00	15.00
Sports	12.00	16.00	10.00
Other	10.00	5.00	5.00
TOTAL EXPENSES			
SAVINGS			

Activity Three: Create a grade book using the Sample Grade Sheet provided. The operations which will need to be performed are:

(1) Widen the student name column to 20 characters.
(2) Label the columns.
(3) Fix labels.
(4) Enter the formula to total and average the student grades. This will be the sum of the five test grades divided by the number of tests given. If your spreadsheet has an average function this is a good place to practice it.
(5) Lock formulas.
(6) Enter the data.
(7) Save this grade sheet to a data disk, labeling it GRADEBK.
(8) Print the grade sheet and turn in to the teacher.

SAMPLE GRADE SHEET

SUBJECT American History SIX WEEKS BEGINNING 1/16
SIX WEEKS ENDING 3/5

CLASS _____
TIME _____

NAME	1st WEEK					2nd WEEK					3rd WEEK					4th WEEK					5th WEEK				
	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F
			Quiz 1			Quiz 2		Test 2			Quiz 3		Test 3												
Gerald Aster 1			75			50		80			30		70												
Elizabeth Clark 2			60			70		65			50		72												
Earl Evans 3			80			77		84			43		78												
Henry Hansen 4			90			86		91			96		100												
Peggy Jones 5			57			83		77			54		72												
Susan Linder 6			36			54		67			51		75												
Lynn Mock 7			23			71		68			42		59												
Sam Palsey 8			84			91		90			65		87												
Sara Sanchez 9			46			56		65			64		70												
Jason Sidle 10			90			76		87			50		83												
Troy Tuttle 11			38			49		57			40		70												
George Yazzie 12			60			87		78			36		63												
13																									
14																									

CORE COMPUTER CURRICULUM

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